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All communications to be addressed:

"The Editor, Journal of Agriculture, Victoria Square, Adelaide."

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T. BUTTERFIELD,

Minister of Agriculture.

POINTS FOR PRODUCERS.

Fruit Crop.

The harvesting of deciduous fruits is now completed, the last to be gathered being Doradillo grapes, which hung in fair distillery condition upon the leafless vines until mid-June. The crop of apples has probably been a record in quantity and quality also for a season of heavy crops and frequent summer showers. The overseas export has been larger than usual, and the trade with adjoining States greater than in any previous season. Added to this, the cool stores are well filled, and much loose fruit remains in private sheds and store-rooms. Those in the latter are keeping the local prices down to a very low figure, owing to the necessity for marketing them before the losses from decay reach a high percentage. Citrus fruits are being marketed, navel oranges having developed an edible degree of sweetness, and lemons are ripening off rapidly. There appears to be an abundant crop of lemons of fair size and quality, but the demand is restricted. The orange crop is from fair to medium in quantity, and the size of a more desirable dimension than usual. This remark applies to navel varieties chiefly. Throughout all of the orange-growing areas, excepting where very closely sheltered by wind breaks, the orange-trees are almost devoid of fruit on the south-western or western sides, a result, doubtless, of the cold, sleety storms experienced just about, and following closely upon, the setting of the fruit last spring. The producers of dried fruits, particularly of grape vine fruits, have had to handle a difficult problem this season, and the finishing up of the drying has been a long-drawn-out and exasperating experience. Many have resorted to extemporised kilns, heated by charcoal drums, while a few others have hastily erected evaporators of a more elaborate nature. The samples of Sultanias and Muscats (lexias) produced have been surprisingly good, when the conditions have been fully considered, indicating what a fine crop of these fruits must have followed had the summer season been consistently warm to hot. The currant growers, though dealing with an earlier maturing fruit, had the misfortune to handle a crop in which the ripening and coloring was unusually inefficient, the result being a general sample of fruit well cleaned and fairly well dried, but poor in color and texture, and possessing little of the true flavor of the Zante currant.—Geo. Quinn, Horticultural Instructor.

Tobacco in South Australia.

The British-Australian Tobacco Company recently sent to South Australia an expert on tobacco curing, for the purpose of giving advice on the quality of the leaf grown in this State and the best methods of handling this. This expert (Mr. C. Lough), in company with the Director of Agriculture (Professor Arthur J. Perkins), and other Officers of the Department of Agriculture, inspected the tobacco grown and flue-cured by Mr. W. A. Gordon at Paris Creek, and by Mr. E. A. Hunt at Mount Barker. After examining the leaf and the

soil conditions under which it was grown, Mr. Lough said the article was a very satisfactory one put up by beginners in tobacco culture. About 90 per cent. of the leaf inspected was suitable for manufacturing purposes. He further stated that the results suggested that with more experience in handling this crop it would probably be possible for growers in the districts mentioned to produce a tobacco leaf of really good quality. The determination of the best manuring practices was a matter that should receive consideration, and when these were arrived at, he thought that it might be possible for South Australian growers to produce an article of first-class quality.

Cereals at Veitch's Well.

The harvest returns secured at the Veitch's Well Experimental Farm for the season 1923-24 were considerably above the average. During the year the total rainfall was 13.33in., and of that quantity 11.75in. fell during the period April to November. The bulk of the area seeded was put in dry during April and May. Crops germinated well after the first rains on May 6th. Heavy winds in June and July cut the young plants with sand drift in some cases, and a dry October also had a depressing effect on yields. Of the area sown 71½ acres were cut for hay. This was sown with Cumberland, Baroota Wonder, Late Gluyas, and King's Early wheats, and yielded an average of 2 tons lewt. 105lbs. per acre. An area of 116.59 acres of oats was harvested for grain. The average yield was 18bush. 24lbs. The varieties which yielded above the average were:—Scotch Grey, 29bush. 24lbs.; Early Burt, 23bush. 39lbs.; Rua Kura, 22bush. 4lbs. The manager of the farm (Mr. L. Smith), in commenting on the oats grown, stated that of the varieties tried on the farm, Early Burt and Rua Kura were considered most suitable, because they could be harvested and cleaned up out of the way before the other cereals were ripe. Scotch Grey had proved a good and consistent grain yielder, but was rather short in the straw to be a good hay variety. Barley was sown on 78.47 acres of fallowed land, and yielded a return of 23bush. 38lbs. to the acre.

Of wheat, 24 varieties were grown, the average yield being 17bush. 24lbs. per acre from an area of 405½ acres. The highest yielding varieties were:—Sultan, 25bush. 34lbs.; Walker's Wonder, 24bush. 29lbs.; Red Russian, 23bush. 15lbs.; Maharajah, 20bush. 25lbs.; Canaan, 20bush. 6lbs.; Triumph, 19bush. 1lb.; Queen Fan, 18bush. 28lbs.; Rajah, 17bush. 43lbs.; Gluyas Late, 17bush. 9lbs.; Cumberland, 16bush. 41lbs.; Gluyas Early, 15bush. 21lbs.; Caliph, 15bush. 1lb. These varieties and, in addition, Baroota Wonder, are in the opinion of Mr. Smith, worth a place on any mallee farm.

In addition to the cropping referred to above, permanent experimental plots are conducted. These include—(1) Tests to determine the most satisfactory dressings of manure to apply to wheat crops; (2) tests to determine the most profitable methods of cultivating bare fallow for wheat growing; (3) relative value of different rates of seeding. Similar tests are also being conducted in respect to six-rowed barley.

The Agricultural Bureau.

During the year 1923-24, 17 new Branches of the Agricultural Bureau were formed in this State, at the following centres:—Wepowie, Kalangadoo (Women's), Cobdogla, Mannanarie, Light's Pass, Wookata, Bethel, McLaren Flat, Pinnaroo (Women's), Poochera, Tweedvale, Kringin, Charra, Brinkworth, Rudall, Gulnare, Karoonda. This brings the total number of Branches up to 233. The Agricultural Bureau was first established in 1888, and in that year there were five Branches, with a membership of 53. Twenty years later there were 113 Branches, with a membership of 2,000. Since that date the number of Branches has been more than doubled, and the number of members of the institution has been increased threefold.

Pruning and Orchard Competitions.

The pruning competitions which have been conducted by Branches of the Agricultural Bureau on the River Murray Settlements during the past four years have awakened a good deal of interest, not only in this State, but in other parts of the Commonwealth. The fame of the competitions has also spread to the United States, and from the State of California the Department of Agriculture some time ago received a request for particulars as to the method of conducting the competitions. A further communication has now been received from that State, acknowledging the receipt of particulars, and conveying information that the members of the staff of the University there are in hopes that similar competitions will be arranged. The Instructor in Pomology (Mr. W. P. Duruz) has written as follows relating to activities amongst fruitgrowers there:—

“At the present time we have some very interesting contests, known as peachgrowers' contests, in some of the peachgrowing districts; likewise in the prune districts, we have prunegrowers' contests. These contests are designed primarily to stimulate interest in better methods of growing and a higher quality of fruit. These contests have been going on for two and three years, and a great deal of valuable information has come out of them. The orchards are divided into classes, according to age and variety, and the fruitgrowers who are desirous of entering the various classes make out entry cards in the spring of the year, giving the location, acreage, variety, and age of trees, and as the summer goes on the fruitgrower keeps a record of the orchard as regards number of cultivations, number of irrigations, &c. At the end of the season, the fruit is sold to canneries or other commercial organisations, and the record of the crop as regards tonnage and quality is taken by the agricultural agent in the district. After the crop has been removed, the orchard is then judged on the basis of condition of the orchard and trees as regards health, vigor, fruit bud formation, &c. This is done by a representative of this department. Each orchard is scored on the basis of production, condition, and record kept by the fruitgrower. For full-bearing orchards, 80 per cent. is allowed for production, 15 per cent. for condition of trees, and 5 per cent. for record. For younger trees this scale is different.

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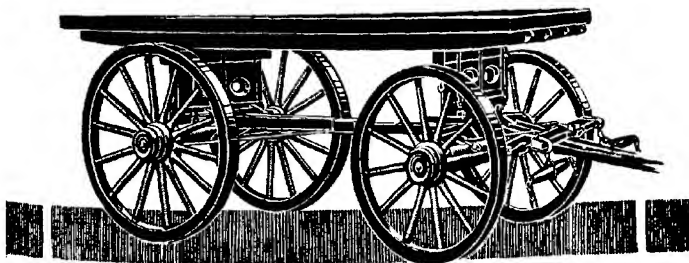
With the exception of the wheel rims, which are bent into shape when green, all the woodwork is thoroughly dried and seasoned before being used. When the wheel rims are bent into shape, they too are thoroughly seasoned, and in this manner retain their shape.

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according to age. For one-year-old trees, emphasis is placed on the training and shaping of the trees, so 95 per cent. is given on condition of trees and orchard and 5 per cent. for record. As the trees get older, more weight is given to production and less to training. The results from these contests have been very interesting. The winning orchards have brought out many good points of interest, and these serve as examples of the best practices for a given district. The average of production for a district has been raised as a result of these contests, and the interest aroused by them has been a great stimulus to fruit-growers. We believe that these contests are more valuable than any other feature that has been introduced into horticulture in recent years."

Cereals on Eyre Peninsula.

Although the rainfall record at Minnipa, Central Eyre Peninsula, last year was only 11.79 in., the Government Experimental Farm at that centre returned the very satisfactory average of 22 bush. 4 lbs. of wheat per acre. Of the total area cultivated for wheat, namely, 480.97 acres, 163.72 acres of fallow land yielded at the rate of 24.42 bush. per acre, and 307.79 acres of stubble land yielded at the rate of 20 bush. 51 lbs. per acre. A small area of new land, slightly under 10 acres in extent, yielded at the rate of 15 bush. 56 lbs. per acre. Hay yields were equally satisfactory. A return of 2½ tons to the acre was secured from Cape oats, and a trifle over 1 ton to the acre from Algerian. Wheaten hay averaged 1½ tons to the acre. For grain, 18 varieties of oats were sown. The highest yielding varieties were Kherson (40 bush. 36 lbs. per acre); Stark's Hooimaker (40 bush. 33 lbs. per acre); Guyra (38 bush. 6 lbs. per acre). The average for the farm was 31 bush. 27 lbs. Three varieties of barley were grown on stubble land. They returned an average yield of 30 bush. 28 lbs. per acre. A small area sown to rye yielded 11 bush. 53 lbs. per acre.

Agricultural Bureau Conference at Willowie.

The annual conference of Upper Northern Branches of the Agricultural Bureau is to be held at Willowie on Wednesday, July 16th. Sessions will be held during the morning, afternoon, and evening. During the course of the conference the following papers will be read:—"Care and Adjustment of Farm Machinery," Mr. S. T. Davill (Morchard); "Best Method of Increasing Production," Mr. S. L. McCallum (Willowie); "Farm Tractors," Mr. R. T. Avery (Willowie); "Recreation for Farm Hands," Mr. F. Bull (Willowie); "The Barometer on the Farm," Rev. A. Trengrove (Morchard). Messrs. W. S. Kelly, C. J. Tuckwell, H. S. Taylor, George Jeffrey, and A. M. Dawkins (members of the Advisory Board of Agriculture) will attend and, in addition, the Director of Agriculture (Professor A. J. Perkins), the Superintendent of Experimental Work (Mr. W. J. Spafford), the Wool Instructor of the School of Mines (Mr. A. H. Codrington), and the Secretary Advisory Board of Agriculture (M. H. J. Finnis).

Viticulture.

In a report dealing with viticultural activities during the month of June, the Viticultural Instructor at the Roseworthy Agricultural College (Mr. D. G. Quinn) mentions that owing to the cool, wet summer the vintage this year was exceptionally late. Generally speaking, the grapes ripened fully a month later than usual, and the thin-skinned varieties suffered considerably from the rains which fell during the ripening period. Pruning was the chief operation now in progress in the vineyards of the State, and excellent pruning wood was to be seen on most of the vines. Because of the good early winter rains, winter ploughing this year would be performed under good working conditions.

The Poultry Industry.

"Throughout the State there is a noticeable improvement both in the methods of poultrykeepers and in the class of poultry on the farms, particularly so in reference to fowls," says the Poultry Expert (Mr. D. F. Laurie), in commenting on the poultry industry during the month of June, 1924. "In the suburban areas there is a great expansion, and commercial poultry plants are increasing in number, and existing plants are being enlarged. There is a very big demand for commercial stock, and established breeders anticipate a strenuous breeding season, which is now beginning. The trade in day-old chickens is assuming large proportions, and will increase yearly, to the great benefit of all concerned. From an inspection of numerous large commercial, as well as small stud breeders' flocks, it is gratifying to be able to report that there has been a steady improvement in type and useful characters, and that last season's young stock, now in full lay, appear better than those of any previous season. South Australian commercial poultry is highly esteemed, chiefly for its heavy egg production, and this improvement in type, &c., must add considerably to this prestige. The adoption of better methods is increasing the supply of first-quality eggs. The market has been satisfactory. For the month of June, 1924, the average price paid for ordinary farm eggs, based on eight published market reports, was 1s. 8d., compared with 1s. 9d. for the month of June, 1923. There is every indication, however, that for the remaining months of the year prices will be rather better than during the corresponding period last year. There is a good local demand for eggs of first quality, and for general production the interstate trade is both satisfactory and growing. It is probable that shipments will be again forwarded to England. Last season's results were eminently satisfactory.

CORRECTION.

[On page 1069 of the June issue, in the advertisement of the Phoenix Motor Company, Ltd., in place of an illustration of a Hupmobile car, that of another was inadvertently printed. We regret the error.—Ed.]

INQUIRY DEPARTMENT.

Any questions relating to methods of agriculture, horticulture, viticulture, dairying, &c., diseases of stock and poultry, insect and fungoid pests, the export of produce, and similar subjects, will be referred to the Government experts, and replies will be published in these pages for the benefit of producers generally. The name and address of the inquirer must accompany each question. Inquiries received from the question-boxes established by Branches of the Agricultural Bureau will be similarly dealt with. All correspondence should be addressed to "The Editor, *The Journal of Agriculture*, Adelaide."

[Replies supplied by Mr. A. H. ROBIN, B.V.Sc., Stock and Brands Department.]

"M. J. C.," Cradock, has a saddle horse with leg swollen from knee to the fetlock. Horse is lame and has been in this condition for six weeks.

Reply—You have neglected to apply suitable treatment to the injured leg for so long now that it will take a good deal of time and trouble to get the animal sound again, and the tendons may now always be more or less weak. Firstly, the horse must be given absolute rest, so keep it shut up in a loose-box or small yard, so that it cannot walk about too much. Take a piece of cotton wool large enough to go completely round the leg from the fetlock to the knee. Soak it in the following lotion:—Tincture iodine, 1 part; glycerine, 6 parts. Apply it to the leg so as to cover the injured tendon. Keep it in place by a stout calico or linen bandage fairly tightly applied and evenly from the fetlock to just below the knee, starting to put it on from the fetlock and working upwards. Repeat this dressing daily until the pain and heat have disappeared out of the parts and the animal moves better. Then apply the following blister to the tendon:—Red iodide of mercury, 1 part; lard, 8 parts. Rub well in for 20 minutes and cover loosely with bandage. Keep animal tied up short all day to prevent it biting the leg. The following day wash off blister with warm soapy water, snip any unbroken blisters, and apply a dressing of vaseline or bland oil, and turn the animal out to grass for three to four weeks. It may be necessary to repeat the blister at the end of this time, and the animal should not be put to work again for a couple of months.

"M. T. G.," White's Flat, has three-year-old draught filly with skin rash and sores on several portions of the body.

Reply—The animal's blood is apparently out of order. Prepare the animal for physic by giving bran mash. Starve overnight and give the following physic ball in the morning following before giving the animal any feed:—Aloes, 6 drams; calomel, $\frac{1}{2}$ dram, nux vomica, 1 dram. Feed only on bran mash while the physic is working, and subsequently feed on sloppy feed, to which is added a handful of Epsom salts daily. Dissolve the salts in a little warm water and use this to damp the feed. Give 1oz. of Fowler's solution in the drinking water daily for 10 days. If itching of the skin is marked, daub the parts with a solution of soda bicarb., as necessary. The animal will require a fair spell.

Hon. Secretary, Hartley Agricultural Bureau, Bletchley, asks cure for pigs affected with worms, and cows with skin disease similar to mange.

Replies—Pigs affected with worms should be starved for several hours and given the following:—(a) Turpentine, 1 tablespoonful; raw linseed oil, 2ozs. to 4ozs., well mixed together; or (b) Areca nut, 2 drams to 3 drams, given in milk. Destroy worms found in droppings, and feed subsequently from well cleaned troughs and keep drinking water supply clean. (2) Re skin disease in cows. Most probably ringworm. A few applications of tinct. iodine daily to the spots will, in this case, effect a cure, or the following:—Beechwood creosote, 1 part; rape oil, 8 parts, applied in the same manner.

Hon. Secretary, Agricultural Bureau, Rendelsham, reports mare with scurf and small sores in the mane and around the eyes; also gelling with a cavity between the horn of the hoof and the "quick."

Replies—(1) Give the animal a good dose of physic (an aloes ball), and subsequently feed on sloppy feed with a handful of Epsom salts added night and morning, or give a liberal supply of green feed. Clean out all scurf from mane with hot water and soap, with a little cresol added. Use a scrubbing brush and clean up thoroughly. The area around the eyes should be similarly treated to clear off all scurf, &c., but do not use a scrubbing brush here; use a piece of rag. Dry thoroughly after cleaning up and rub in well each day a little yellow vaseline. (2) Open up the cavity as much as possible with a hoof searching knife, so as to allow free drainage of pus and also to permit of dressings getting on to the wound more satisfactorily. Scrub the foot up to clean it, then put it into a bucket of water to which is added some condys or lysol. Give the foot a good soaking daily in this way for half an hour at a time. Then wipe foot dry with a piece of clean rag, pour a little iodine tincture into the cavity and plug it up to keep out all dirt, and tie the foot up in a piece of sacking to keep it clean in between dressings. Repeat this treatment daily till all discharge stops. Then plug the cavity with Stockholm tar and a little tow, and put a leather pad under the shoe to cover it up.

"E. C. S.," Pinnaroo, has mare with swellings on the chest, the belly, and legs.

Reply—Prepare the mare with bran mash and give the following physic ball:—Aloes, 6 drams; calomel, $\frac{1}{2}$ dram; nux vomica, 1 dram. After the physic has worked off, feed on sloppy feed and put a handful of Epsom salts in daily, or give a liberal supply of green feed. Allow the mare to have light exercise. Give 1oz. of Fowler's solution daily in drinking water for 10 days, and a heaped tablespoonful of the following powder twice daily immediately after feeding: Pulv. fern. sulph., $\frac{1}{2}$ lb.; powdered nux vomica, $\frac{1}{2}$ lb.; powdered gentian root, $\frac{1}{2}$ lb. When the swelling subsides, feed liberally on good feed.

Hon. Secretary, Agricultural Bureau, Mannanarie, seeks information re losses of sheep through eating stinkwort.

Reply—From evidence obtained, not only in this State, but from other parts of the world as well in connection with stinkwort, the plant is most troublesome when in the flowering stage, the sheep eating the young succulent shoots. Conclusive evidence as to just what is the exact nature of the trouble arising therefrom is wanting, but from our experience it would often seem to be merely a digestive upset. This condition is likely to arise too, where through lack of other forage, sheep are forced, through hunger, to eat the older tougher growth. Sheep, as a rule, will not worry stinkwort if there is other good edible feed available, and several instances have been noted by this Department where losses from stinkwort have ceased when the sheep have been liberally hand fed, even though they have still remained in paddocks where the weed is growing. An early dose of Epsom salts given to affected sheep and drenching with black coffee might prove serviceable in many cases.

Hon. Secretary, Blackheath Agricultural Bureau, Rockleigh, asks best method of removing warts from cows' teats.

Reply—Any warts having necks capable of constriction can be readily removed by snipping them off at the base with a pair of sharp scissors, and the cut surface touched up with a little caustic pencil. If they are large, they are liable to bleed severely, and are more safely removed by ligaturing them around the base with a piece of silk or fine waxed thread. When the warts have a broad base and cannot be handled in the above way, they should be treated first by giving them a good soaking in a weak solution of washing soda. This will soften them, and drying of the parts subsequently with a piece of rag will wipe off all surface scales and leave the warts opened up properly to the action of caustic, which must then be applied. The most effective caustic is silver nitrate, which can be obtained in the form of a small pencil or stick. The warts should be touched up with this, care being taken that it is applied only to the warts and not the adjacent healthy skin. A safe application is salicylic acid, 1 part, collodion, 7 parts. The rubbing in of vinegar or olive oil is sometimes effective in removing warts.

Hon. Secretary, Agricultural Bureau, Yadnarie, reports horse with growth on the inside of the eye.

Reply—The horse is affected with epithelioma of the eye, commonly termed by stockmen as a "cancer" of the eye. The condition can only be remedied by a surgical operation.

"E. H. M.," Clare, has pony with injury to the eye. The eyeball is punctured, and a membrane, dark green in color, is protruding.

Reply—Unfortunately the condition of the pony's eye is one which calls for some first hand attention by a qualified veterinary surgeon, but if you carefully follow out the following instructions fairly satisfactory healing will probably result, though the eye will remain blind. Keep the pony in a darkened stall if possible, or else cover the damaged eye with a piece of clean calico tied around the head so as to exclude the light. Bathe the eye three or four times daily with a little boracic lotion to remove all matter. Each time this is done put a little of the following lotion into the eye itself with a small syringe so that it runs all over the eyeball:—Tincture sulphate, 2 drams; boracic acid, 1 dram; distilled water or rainwater, 1 pint. The lotion should be warmed to blood heat before injecting it into the eye.

"A. T. G.," Second Valley, has horse, free from lice, continually rubbing tail on posts and fences.

Reply—The trouble is worms. Starve the horse for 16 hours to 24 hours and dose with raw linseed oil, $1\frac{1}{2}$ pints, turpentine, 2ozs. In addition, give enemas of warm salt water, which will help to remove small white worms from the back part of the bowel, which are the cause of the irritation.

"H. J. A.," Langhorne's Creek, reports cow that passes yellow stringy matter with the milk.

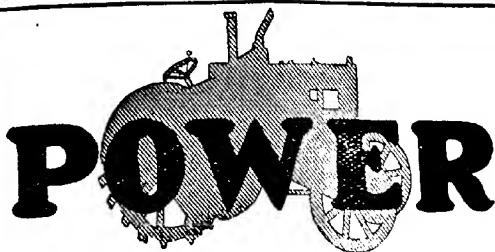
Reply—The cow has an attack of mammitis. Keep the udder and teats thoroughly clean. Strip out frequently—four or five times, or even more, a day if possible—making sure the hands are thoroughly clean. Destroy the milk, foment and massage the udder, and rub in a little camphorated oil. Keep the affected cow isolated from other animals, and milk her separately from the others.

"E. T. M.," Millicent, reports death of young pigs fed on new milk and later on milk from the separator; also heifer due to calve in six weeks. Calf appears to be in wrong position for birth.

Reply—(1) *Re* young pigs dying. The trouble would appear to be dietetic. The young pigs would be just at the age when they would be commencing to look around for food for themselves a bit, in addition to the milk supply they would be getting from the sow. It is quite a common thing for young pigs at this stage of growth to suffer from intestinal troubles and scour unless they are carefully handled. Particular care has to be taken with respect to the sty to see that it is thoroughly warm, clean, and dry, and that no spoiled food is left lying about. Any of the above conditions (particularly the last) is detrimental to young pigs. Young pigs are also better doers if allowed to get exercise by grazing. When young pigs are affected with intestinal troubles, it is safest and best to treat them per medium of the sow by giving her a good purgative and keeping her general health in the best possible order. Though not suffering apparently, a suckling sow will at times get somewhat dainty and off color, and this may seriously affect the young pigs through the milk. (2) *Re* heifer in calf. There is nothing you can do in this case, but nurse the heifer along until she is ready to calve, when any assistance, if necessary, to remove the calf can be given.

"E. E. M.," Curramulka, reports horses in poor condition, coughing, loss of appetite, and turns head to the rear when lying down.

Reply—The animals are suffering from chronic intestinal disorder, and two things in particular would seem to require serious attention, viz., the general management of the animals, and the quality of the feed. The description of symptoms point to there being something seriously wrong with the feed, which should be attended to otherwise trouble may continue. The stallion seems to have died as the result of a forage poisoning, and the mare seems to be going the same way. You may be able to save her by giving her a good cleaning drench of raw linseed oil, $1\frac{1}{2}$ pints, turpentine, 2ozs., subsequently feeding on good quality food (easily digested) with a handful of Epsom salts in the feed night and morning for



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some days. Give some steamed oats, bran, good chaff damped, and a ration of green feed. The rig should be treated similarly. Let him get exercise by grazing, because exercise will be helpful to reduce the swollen legs. Make sure that horses have free access to a supply of wholesome drinking water.

BLACK SPOT IN WALNUTS

The Clarendon Branch of the Agricultural Bureau asked, "Will lime and soda, applied to roots of walnut trees, prevent development of black spot?"

The Horticultural Instructor (Mr. Geo. Quinn) says that this disease is caused by a bacterial attack, and no remedy is at present known. In the United States of America, where exhaustive researches have been made on the disease, a recommendation to select resistant sorts and propagate same has been advanced as the only solution of the trouble.

WHITE ANTS AND CEREALS.

"Why do white ants attack the roots of green wheat?" recently asked the Mitalie Branch of the Agricultural Bureau.

The Entomologist's Assistant (Mr. N. B. Tindale) of the South Australian Museum, reported in reply that there are a number of instances on record of termites attacking growing cereals. The damage is caused by species which normally attack grasses; these do not build conspicuous nests above ground, but live in colonies, in galleries on or near the surface of the ground. Very often the termites are secondary pests, following up injuries by other insects, such as cutworms or weevils, but in many instances healthy plants are attacked. The injury is most serious in recently cleared land, where there is abundant decaying wood and vegetable matter in which the insects breed. Such debris should be removed. In old cleared lands, ploughing in stubble provides a good supply of food for the pests, and should be discontinued where the termites are prevalent. If the infestation is serious, fallowing for a season, or deep ploughing, should be of value in checking it.

CABBAGE "BLIGHT."

Tarcowie Branch of the Agricultural Bureau asks for a remedy for "blight" on cabbages.

The Horticultural Instructor (Mr. Geo. Quinn) says if the "Blight" is cabbage aphid, spraying the leaves thoroughly on all sides with warm kerosine emulsion will suffice, if applied in the early stages of the attack. This kills by contact, and must be thrown on to the insects.

TOMATO WEEVIL.

Nelshaby Agricultural Bureau forwarded specimens of "a kind of bug or beetle that is very destructive to tomatoes this year," and asks for a method of treatment.

The specimens forwarded were identified by Mr. N. B. Tindale (Entomologist's Assistant, Adelaide Museum), as the Tomato Weevil (*Desiantha noctua*). This pest causes much damage in Victoria to tomatoes, cabbages, and other vegetables. The greenish grubs are destructive, as well as the adult beetles. The nocturnal habits of these pests render them rather difficult to combat. Spraying all affected plants, and any other plants in the vicinity, with a weak solution of arsenate of lead should be of considerable help. In the case of seedling tomatoes, Mr. French recommends that sheets of paper be placed on the ground under the plants, which are visited at night—the light used startles the beetles, which can be collected from the papers on to which they fall. The beetles are very tenacious of life, and specimens obtained in this manner should be placed in boiling water for several minutes. They are very partial to the Marsh Mallow, and if any are growing in the vicinity they should be heavily treated with arsenate.

BURN STUBBLE BEFORE FALLOW.

"Would you advocate raking the stubble and burning before disking—keeping in mind the facts that (1) stubble may induce the spread of Take-all, and it is not usual to find Take-all in land carrying its second crop?"

These two inquiries were recently submitted by a farmer at Wynarka, who mentioned that owing to the unfavorable burning season, much of the stubble in the district remained unburnt. He proposes following the land which has only carried one crop, and it was in special reference to this that he submitted the inquiries, which were replied to by the Superintendent of Experimental Work (Mr. W. J. Spafford) as follows:—"I certainly recommend burning stubble on the land you propose following this year, because the fire has a disinfecting, sweetening, and mellowing effect on 'new' land, which cannot economically be given in any other way, and at the same time it is the cheapest known way of killing the scrub. Although it is not usual to have Take-all on land only carrying its second crop, after rolling down the scrub, there is more danger of this disease appearing if the stubble is worked into the land, than if it be burnt, because it is much easier to cultivate the soil properly after a fire than if the stubble is retained. I should say that from every point of view, it would be to your advantage to burn the stubble before fallowing."


PLANTS FOR IDENTIFICATION.

Specimens identified and reported on by Professor T. G. B. Osborn, M.Sc.:

From Mannanarie Branch of Agricultural Bureau: *Heliotropium asperum* (natural order, *Boraginaceæ*), a plant native to South Australia, and although there are no records that the plant is injurious to stock, it should be mentioned that some members of this genus are used medicinally, and, judging from the essential oil present in this specimen, the plant would probably produce scouring.

From Mount Barker Branch of the Agricultural Bureau: *Panicum crus galli*, an introduced grass of some fodder value.

From R. J. B., Laura.—*Oryzopsis miliacea*. The many-flowered millet grass, an introduced perennial. It is generally considered good fodder, and stands cutting, but, though widespread in South Australia, it does not maintain itself long except as a garden weed.




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TAKE-ALL INVESTIGATIONS. II.

[By GEOFFREY SAMUEL, Lecturer on Plant Pathology,
University of Adelaide.]

When investigations on Take-all were commenced at the end of last year, a preliminary report was made* giving the conclusions drawn from inspecting a number of crops shortly before harvest, in conjunction with a consideration of the methods of cultivation used, as explained by the owners. In that report it was emphasized, as has frequently been done before, that proper methods of cultivation alone can do much towards controlling Take-all. The following practices all seemed to help considerably in lessening loss from this disease:— Burning the stubble after a Take-all diseased crop; fallowing early; keeping the fallow clean from all grasses, but working it wet, if possible, not dry; sowing wheat only on a good fallow; using heavier dressings of superphosphate; sowing later, such as is done with early wheats; rotating the crops, making such rotation as wheat-cuts-bare fallow, or some other. It may be added that the practice of so-called "summer-fallowing", in which the land to be fallowed is ploughed up in March or April, before seeding-time, and remains clean fallow all the following winter and summer, will probably be found of considerably greater benefit than ordinary fallowing (after seeding, late winter) in the control of Take-all. This cannot be done on all soils, of course, but it is usually possible on the lighter soils on which Take-all is most prevalent.

During the summer months no experiments could be done with the disease on wheat plants under normal field conditions. Such experiments are now in progress, however, and it is to be hoped that some results will be available at the end of the year. In the meantime investigations have been continued in the laboratory into the parasitic fungi which are the cause of the Take-all disease, and the present report will outline some of the results obtained in this direction.

SANDHILLS BADLY AFFECTED.

As before, because of the courtesy of farmers of the district, of which special acknowledgment is made at the end, work was continued in the district of Pinnaroo, where Take-all is often severe in places. In this district there are flats of a reddish sandy loam crossed at intervals by long white sandhills, and it is on the latter especially that the Take-all

*Take-all Investigations, Journ. Dept. Agric., Sth. Aus., vol. 27, 438-442, Dec., 1923.

disease is usually found to be worst. It is not uncommon to see a good 20-bushel crop on the red flat part of the paddock, while on the top of a sandhill which crosses the paddock, sown in exactly the same way, nearly all the wheat may be diseased and stunted, and giving only five bushels or less to the acre. The disease is sometimes so bad on these sandhills that it cannot be said to occur in definite patches, as is supposed to be characteristic of Take-all; rather is wheat with good ears only in small patches. Take-all is frequently found even on the flats, but there it is nearly always present in more or less definite patches.

TAKE-ALL AND "FOOT-ROTS".

An examination of a large number of diseased plants collected from different paddocks, has shown that they were not all killed by the true Take-all fungus. In addition to this there were found fungi which have been described from other countries as causing "Foot-rot". Wheat plants were also found apparently killed by still other fungi, and these have been isolated and will be tested on growing wheat this season, to determine whether or not they are real parasites.

When the records of these examinations are considered in relation to the places in which the diseased plants were gathered, however, it becomes evident that although the true Take-all fungus is responsible for most of the damage in the patches on the heavier ground, this cannot be said of the damage on the sandhills. On the latter, "Foot-rots" of wheat seem to play an important part. The relative importance of Take-all and Foot-rots, however, can only be estimated after much more work has been done.

The examination of all the specimens collected is as yet by no means complete. Some indication of the relative occurrence of the different fungi can be gathered, however, from the figures so far obtained from the examination of a number of diseased wheat-plants taken at random from three different stubble-paddocks, separated by some miles from one another.

	A Flat.	B Sandhill.	C Sandhill
Specimens examined	200	80	200
Specimens determinable	62%	24%	36%
Of latter—			
Fungus No. 1 (true Take-all, <i>Ophiobolus</i>)	67%	0%	27%
Fungus No. 2 (<i>Wojnowicia</i>)	33%	37%	9%
Fungus Nos. 3 and 4 (Foot-rots, <i>Helminthosporiums</i>)	0%	63%	64%

It will be seen from the above figures that the true Take-all fungus is the most important on the heavier land, whereas on the sandhills the Foot-rot fungi are more in evidence. It is probable that the

examination of a larger number of specimens may somewhat alter these percentages, but it is not likely to affect the general distribution noted above. (It is to be hoped that the figures can also be made more accurate by inducing spore-formation on many of the specimens on which the fungus was not fruiting, and which were thus unable to be determined with certainty.)

It should be emphasized here that these results are derived only from work done in the district of Pinnaroo. It cannot be said yet that Foot-rot fungi are common in other parts of the State. Indeed, from the results of a survey made some years ago by Prof. Osborn upon material sent in to the laboratory, it would seem that the true Take-all fungus is responsible for by far the greatest amount of damage. And if further work confirms the present supposition that Foot-rot may be the more important disease on the light sandhills, while Take-all is more important on the heavier land, then it is rather as would be expected that Take-all is the more widespread, for the majority of our wheat land is of the heavier non-sandy type. The present results make it highly desirable, however, that a more thorough examination be conducted over a wider area, and it is hoped that this will be done next season.

CONTROL METHODS.

With regard to the practical significance of the presence of Foot-rots as well as Take-all in our wheat, it can only be said that much further research must yet be done to find out the differences in the behaviour of these diseases, before we can make any differences in our methods of control. At present the same methods of control which are used for Take-all, as were enumerated in the first paragraph of this report, are found also to be good for the control of Foot-rots. It is of great importance, however, that in seeking more efficient methods of control for the diseases which affect our crops, we should first find out what these diseases are and how they act. It is only when we know these things thoroughly that we can make commonsense efforts at control, instead of groping about blindly in the dark.

HOW DOES TAKE-ALL SPREAD?

One point about which we need much further information is how the Take-all disease spreads. At present, if we have a good fallow, and get a good clean crop off it, we naturally assume that the land is free from Take-all. But it only needs a year or so's neglect by a careless farmer, and we can be practically certain that the Take-all will appear. How did it come there, is the question, and where did it come from?

On looking through the literature on the subject, very little of a definite nature is to be found concerning the spread of Take-all in nature. It has frequently been shown by pot experiments that pieces of Take-all diseased straw can convey the infection. The infection of wheat root-hairs under laboratory conditions by the spores of Take-all, which are formed at or near the surface of the ground on the bases of diseased plants, has also been described by one observer. Two descriptions can be traced of wheat plants having been infected by Take-all spores while the plants were growing in the soil. Only one of these is available in Adelaide, this being an account of some pot experiments by Mangin, in France. There, another fungus (*Leptosphaeria herpotrichoides*) is said to cause more damage by root-rotting and stem-blackening than the true Take-all fungus. In Mangin's pot experiments, in which spores of each of these fungi were sown with wheat, infection soon resulted in the case of the former, but no result was observed with the Take-all until a second lot of wheat was sown in the pots five months later, this second lot eventually becoming diseased. Infection by means of the spores thus requires further investigation yet.

IS TAKE-ALL CARRIED ON THE SEED?

In this connection an article in the *Journal of Agriculture of Victoria* (vol. 19, 447; July, 1921), entitled "Seed-borne Diseases," should be mentioned. It was written after the Take-all disease of wheat had made its appearance in America in 1919. At that time, owing to her own huge exports to Europe because of the War, America imported over five million bushels of wheat from Australia. The Plant Pathologist of Victoria gave a warning of the risk that was being run; and none of the wheat was allowed to be used for seeding purposes. Very soon afterwards, however, Take-all was found in wheat fields in New York State, and rapidly spread. It seemed certain that it had somehow come from Australia with the wheat imported, becoming introduced to the land, perhaps, through some of the milling offal being fed to animals.

The question of the extent to which Take-all may be carried on the seed is important, however, and should be carefully considered.

It has been proved that the Take-all parasite only lives in the roots and few basal nodes and internodes of affected plants; tests made higher up the stems show that there is no fungus present in the top portion of such plants. The seed, in those cases where any seed is formed, must therefore be free from direct infection.

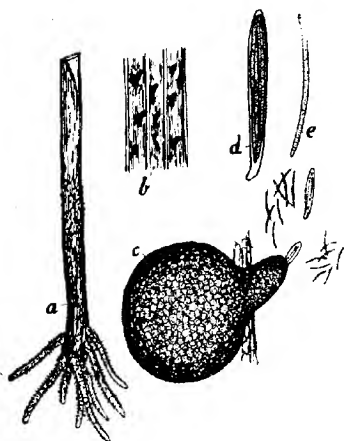


FIG. 1.

FUNGUS No. 1.

The true Take-all fungus, *Ophiobolus graminis*—*Ophiobolus cariculi*.

- a. Base of affected wheat plant. The necks of the spore-cases can be seen as minute black dots protruding through the leaf-sheaths about ground level.
- b. Appearance of protruding necks when magnified slightly.
- c. Single spore-case more highly magnified, with neck protruding, ejecting packets of eight spores, which quickly burst.
- d. Packet of eight spores, still more highly magnified.
- e. Single Take-all spore.

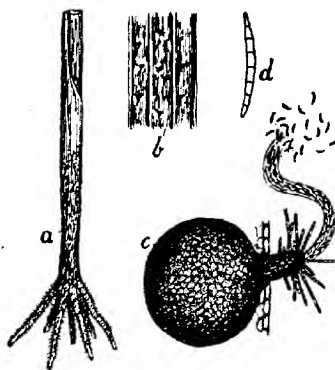


FIG. 2.

FUNGUS No. 2.

Wojnowicia graminis.

- a. Base of affected wheat plant. The necks of the spore cases can be seen as minute black dots protruding through the leaf-sheaths about ground level.
- b. Appearance of protruding necks when magnified slightly.
- c. Single spore-case more highly magnified, with neck protruding and ejecting a tendril of spores embedded in mucilage. Spores soon flying apart in water.
- d. Single spore still more highly magnified.

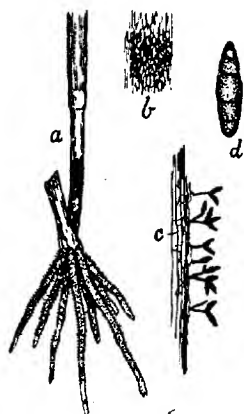


FIG. 3.
FUNGUS No. 3.
A Foot-rot fungus.
Helminthosporium sp.

- a. Base of affected wheat plant. Spores formed in brownish layer on stem about ground level and below.
- b. Spore layer slightly magnified.
- c. Spore layer in section, more highly magnified, showing spores being formed on projecting branches of fungus.
- d. Single spore, more highly magnified.

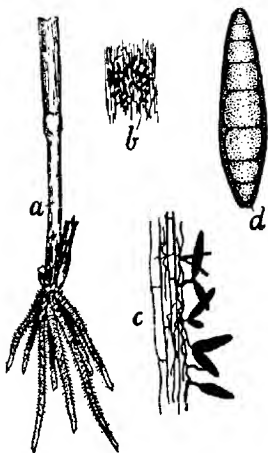


FIG. 4.
FUNGUS No. 4.
A Foot-rot fungus.
Helminthosporium sp.

- a. Base of affected wheat plant. Spores formed on stem, mainly below ground (which is open and sandy).
- b. Spore layer slightly magnified.
- c. Spore layer in section, more highly magnified, showing spores being formed on projecting branches of the fungus.
- d. Single spore, more highly magnified.

There remains the possibility, however, that very small pieces of diseased straw, or the spores of the fungus, might be blown up after the trampling of the harvester-horses over Take-all patches, and adhere to the beard of some of the grains. Even were this to happen very seldom indeed, it might yet be sufficient to introduce the disease to a new country. This is possibly what the author of the article on "Seed-borne Diseases" had in mind. It seems even more probable, however, that the infection might be carried on bags. In the case of both harvested, and stripped-and-winnowed wheat, bags are stood on the ground in the paddocks, and numerous pieces of straw stick to the bottoms. When it is remembered that a piece of diseased straw only the size of a pin's head, or less, can carry the disease, it can easily be understood how bags, having such fragments of diseased straw adhering, could carry the infection.

In a recent number of the *Journal of Agricultural Research* (vol. 25, 351, August, 1923), however, an American writer states that he has found the Take-all fungus on a native grass on ground which had been undisturbed for fifty years—the campus of Arkansas University, a thousand miles from the place of the outbreak in 1919. He concludes that "there is no reason for doubting the endemic nature of *Ophiobolus* on this native grass"; and therefore the outbreak in 1919 may not be traceable to infection from Australian wheat at all, and the Take-all fungus may have been present in America for many years, though previous to 1919, overlooked. (Or perhaps a more virulent strain was actually introduced.)

METHOD OF SPORE-LIBERATION.

This brief review shows that much more information and careful experiment is needed yet before we fully understand how the Take-all disease spreads. The following notes on the method of spore-liberation of the fungi which cause Take-all and Foot-rots in this State, together with some field observations, have a bearing on the problem of spread; and though the observations are as yet very incomplete, a short account of some of them may be of interest.

The method of formation and liberation of the spores of these fungi may be considered best with the aid of the drawings given. Fungus No. 1, the true Take-all fungus, and to a lesser extent Fungus No. 2, are those usually found on the dead plants in Take-all patches on the (relatively) heavier land. Fungus No. 3 and Fungus No. 4, two Foot-rot fungi, are those which were found on many of the dead plants on white sandhills at Pinnaroo. The "spores" of the fungus, which may give rise to the disease when they come in contact with a growing wheat plant, in the case of Fungus No. 1 and Fungus No. 2, are

formed in minute black spherical spore-cases with short necks, each little case holding some thousand of spores. In both these fungi the spores are only ejected from the spore-cases, through the short necks, when the spore-cases are thoroughly wet with water. When thoroughly wet, water is absorbed and a mucilaginous substance swells up inside the spore-case to such an extent that the spores are forced out at the opening of the neck, at the rate of nearly 100 a minute for Fungus No. 1, and sometimes at the rate of 200 a minute for Fungus No. 2. The spores of Fungus No. 1 are ejected in little packets of eight, but in from five to ten seconds after the packet of eight emerges from the neck into the surrounding water, it suddenly bursts and the eight spores lie free in the water. The spores of Fungus No. 2 are pushed out first in a long tendril, being embedded in a mucilaginous substance; usually within a few seconds, however, the spores all fly apart from one another in the water, probably owing to the rapid absorption of the water by this mucilaginous substance in which they are embedded.

When once free in the water, of course, the spores of both these fungi can be carried about in the trickling rivulets formed during a heavy rain, or they can be splashed about by falling rain-drops. If they remain in water for from two to ten hours, even though it be only in a thin film on soil particles or roots, they will germinate, and send forth a thin germ-tube which will penetrate inside the roots of young wheat seedlings or grasses and start the 'Take-all' disease. Many millions of spores, however, must germinate every year in places where there are no wheat plants to attack, such as is the case on clean fallow, and then they soon die from lack of food. One question which arises is, supposing that the spores become dry soon after they are pushed out of the spore-cases and before they have had time to germinate, can they be blown about in the air for considerable distances, and still germinate when they fall in water again? In connection with this, the following field experiments were made:—

SPORE-TRAPS.

"Spore-traps", consisting of glass plates smeared with a very thin layer of vaseline, were hung at several points along the fence on the windward side of a stubble paddock which had been badly affected with Take-all. Similar traps were also set on the windward side of definite Take-all patches at various places in the paddock. The traps were mostly set about 8 a.m. and collected and examined about 4 p.m., though others were left all night. An examination of diseased plants from the stubble showed that many spores, both of Fungus No. 1 and Fungus No. 2, had ripened in their spore-cases, and were ejected when the latter were placed in water. The spore-traps were first set on

13th April, there having been an appreciable shower of rain the previous night, and all the stubble being thoroughly wet. It is most probable, therefore, that many spores had been ejected during the rain. When the spore-traps were examined after eight hours' exposure, there having been a moderate wind all day, no Take-all spores were found upon them. The spores present in greatest abundance were those of the straw-blackening fungus (*Cladosporium herbarum*), which was everywhere on the rotting stubble. The following list gives an idea of the spores caught on a spore-trap (the glass plates being 3½ in. by 7 in. each) :—

Straw-blackening fungus	3280
Various rust spores	44
<i>Alternaria</i> (mould)	5
Foot-rot of wheat	1
Take-all of wheat	0

Spore-traps were set on four consecutive days, and in the case of those on the windward side of Take-all patches, the experimenter tramped up and down on the stubble in front of the traps in order to try to raise some dust. Even on the fourth day after the rain, however, the ground was still moist, and little dust could be raised. On the twenty-two spore-traps examined no Take-all spores were caught.

This does not *prove*, however, that Take-all spores are not blown about. Under drier conditions it is possible that this might occur, and further tests will have to be made. In the meantime, however, certain laboratory tests have been made which have a bearing on the question.

In one series of experiments several hundred Take-all spores were liberated by crushing one or two spore cases into drops of water on a number of glass slides, and the slides set aside so that the water dried up leaving the spores air-dry. Each following day one such slide was tested by adding a drop of water and placing in the incubator, to see if the spores would still germinate. But it was found that on the third day after they became dry they would germinate no more. Under the cool, shaded conditions of the inside of a room, therefore, free spores lose their power of infection if dried for about two days. The experiment must be repeated under varying conditions, and with spores of different ages, before definite conclusions can be drawn, but it would certainly not seem from this that Take-all spores after they have been liberated would carry the disease long distances on dry seed for example.

In certain other fungi which eject their spores in packets of eight when the spore-cases are wetted, and in which the packet enclosing the eight bursts soon after ejection, the liberated spores are often shot

into the air and carried about by wind. Preliminary tests made on the Take-all fungus, by suspending glass slides round diseased plants on which spore-cases were present, which were then wetted so that they ejected their spores, gave no positive results of ejection of spores into the air. The tests made so far, therefore, do not favor any theory of the spread of Take-all over considerable distances by means of the free spores. Further tests are being carried out, however, which should yield more definite information soon.



FIG. 5.—Barley-grass (*Hordeum marinum*) plants killed by the Take-all fungus (*Ophiobolus cariceti*). Note blackened stem bases and undeveloped heads. From pasture near Pinaroo.

SPORES OF FOOT-ROT.

In the case of the Foot-rot fungi (Fungus No. 3 and Fungus No. 4. *Helminthosporium* spp.) the position is very different. The spores are not formed in closed spore-cases, as in the previous two fungi, but on minute branches of the fungus mycelium which project from the diseased straw in immense numbers near the level of the ground (see drawings). The spores are not readily blown off at first, but as they become dry their attachment becomes looser, and then a puff of wind may carry them away. Owing to their very minute size they are carried about in the slightest currents of air, and may travel thus for miles. They are also easily detached in water, and are no doubt washed off into the soil in great numbers during rain.

These spores also have a much thicker and harder wall than the Take-all spores; they live for a matter of weeks when dry, and could be blown long distances and still be capable of germinating in water. Only two of these Foot-rot spores were caught on the spore-traps exposed, but the tests were made only in a paddock where the disease was mainly Take-all, for at that time it was not known that Foot-rot occurred plentifully on the sandhills; a spore-trap, moreover, is very minute in size compared with a 60-acre paddock, and is only exposed for a few hours. Foot-rot spores have also been found to blow about in the air in America, and have been caught on spore-traps exposed from aeroplanes at a height of ten thousand feet. It should be mentioned that certain workers in America consider the main method of distri-

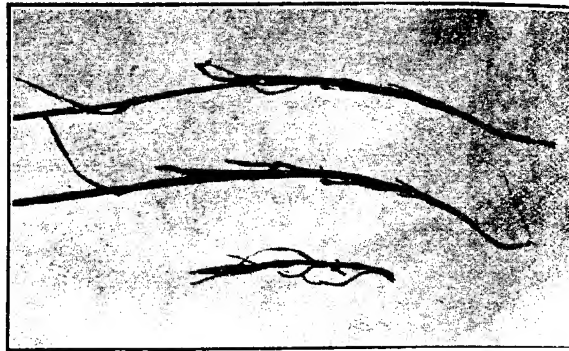


FIG. 6.—Take-all infected barley-grass stems found blowing about loose, two found on fallow. These stems carry the disease about in a viable form for several months.

bution of these Foot-rots to be the seed, at least in certain species; so far, however, this has not been confirmed for the South Australian disease.

OTHER MEANS OF SPREADING.

The blowing about of spores is not the only possible means of spread of these fungi, however. It was stated in the previous report that a considerable amount of Take-all infection of barley-grass, and to a less extent of silver-grass, was found on certain pasture-land. Take-all infected barley-grass is usually small and undeveloped, the heads often remaining enclosed in the sheaths (Fig. 5). The plants sometimes become almost fully developed, however, in which case they bleach off while healthy plants are still green, thus reminding one of

the "whitehead" stage of the disease on wheat. At the base of the stems is the same blackening visible on Take-all infected wheat stems.

On ripening and drying off in early summer these small barley-grass stems become very brittle, and are easily broken off from the roots by the footsteps of man or animals. Broken off stems were even found on pasture-land on which no stock had run since the time of drying of the grass. It may be, therefore, that wind alone can break off Take-all infected barley-grass stems. On the base of the broken off stem remains part of the Take-all infection which is still viable. The stems shown in Fig. 6 were picked up blowing about loose, and all of them showed Take-all to be present at the base when examined with the microscope. Two of them were picked up on fallow land, some distance from any barley-grass.

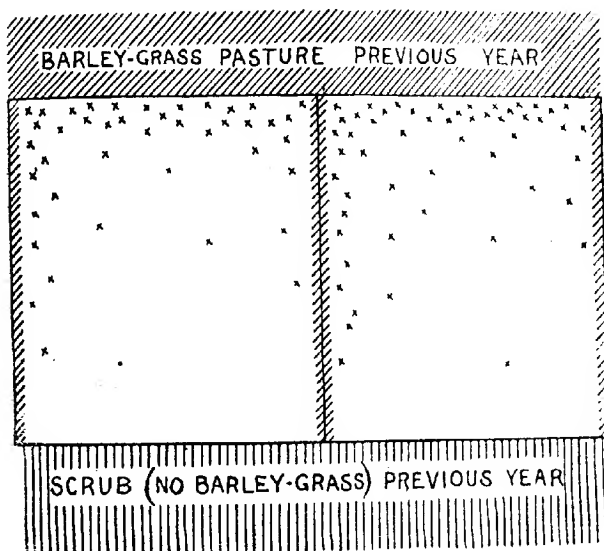


FIG. 7.—Diagram illustrating the manner in which two fields were affected with Take-all. The crosses indicate the distribution of Take-all patches, but are not accurate plottings.

If large pieces of Take-all infected barley-grass straw such as these can be blown over fallows, it will be easily understood how many more smaller, unnoticeable pieces might be blown about. The flimsy leaf-sheaths at the bases of infected plants are nearly always infected also, and very small fragments are able to carry the infection. It

would be very desirable to gain some more definite idea of the extent to which such fragments of straw are blown about, by the method of traps as used for spores. This was not done last year, but it is hoped that more information will be obtained this year.

EDGES OF CROPS SUFFER MOST.

It is frequently remarked by farmers that the Take-all is worst round the edges of crops. This is what would be expected if infection were carried on to clean fallows by pieces of diseased straw blowing about. The diagram in Fig. 7 illustrates this point from field observations by the writer. Two adjacent paddocks both had good crops of wheat in them, except that along one side Take-all patches were especially numerous. As one advanced into the crop from this side isolated Take-all patches were still met with at first, but later the crop became perfectly clean, and no trace of Take-all could be found in the further half. No soil factors seemed to be sufficient to explain this, for the paddocks were very uniform. On inquiry it was found that during the previous year, when these paddocks had been fallow, a pasture containing much barley-grass had been on the first side, while natural scrub, which contains no barley-grass, was on the side which was clean. The infections were also noticeable a little way up the side fences, where there is nearly always a strip of ground left unploughed and supporting barley-grass.

Similar, but less striking instances were seen on other occasions. Although not proved yet that the barley-grass caused all the Take-all patches in these cases, it must be viewed with strong suspicion for the present. And in any case, because of its susceptibility to the Take-all disease, it is a grass which it might be well to endeavour to replace with something better. This grass was also found widely affected with Foot-rot. The spores from diseased plants are being tested on wheat to see if cross-infection results.

TECHNICAL NOTES ON THE FUNGI FIGURED.

MacAlpine, in his original description of *Hendersonia* (now *Wojnowicia*) *graminis*, on account of only finding it on specimens affected with *Ophiobolus graminis*, suggested that it might be the pyrenidial stage of this fungus. In South Australia, specimens have been found with both the pyrenidia of the *Wojnowicia* and the perithecia of *Ophiobolus* present, but in the large majority of cases the two do not occur together. The plate mycelium also appears to differ in the two; and the mycelium in culture is absolutely distinct. The mycelium of the *Wojnowicia* has characters in common with those described for *Leptosphaeria herpotrichoides* in France, especially the very characteristic lateral protuberances. In the degree of hairiness of the pyrenidia there is also great resemblance to the condition as described for *Leptosphaeria*, all gradations existing from smooth, through bristles only on the neck, to wholly bristly. A more detailed account and discussion of these observations will be published later.

The *Helminthosporiums* have been sent away for authoritative naming; they also are being grown in culture, and will be described in more detail later.

SUMMARY.

It is shown that Foot-rots of wheat as well as Take-all occur in South Australia. In the Pinnaroo area, where the observations were made, the Foot-rots occurred mostly on the sandhills, while Take-all occurred on the latter, relatively heavier, soils.

Preliminary investigations point to the fact that Take-all is not distributed over long distances by means of its spores. On the other hand, infected pieces of straw, especially of barley-grass straw, have been found blown about in the paddocks, and these may be the main sources of infection.

It is a pleasure to acknowledge the willing assistance of farmers of the Pinnaroo district in rendering all kinds of facilities to the investigator, and especially of Messrs. W. B. Davis & Sons, on whose farm he several times stayed.

CHARLES WHITING, GRAIN AND PRODUCE SALESMAN.

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mation as to how to
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SOME ASPECTS OF THE PIG INDUSTRY.

[By H. J. APPS, Assistant Dairy Expert.]

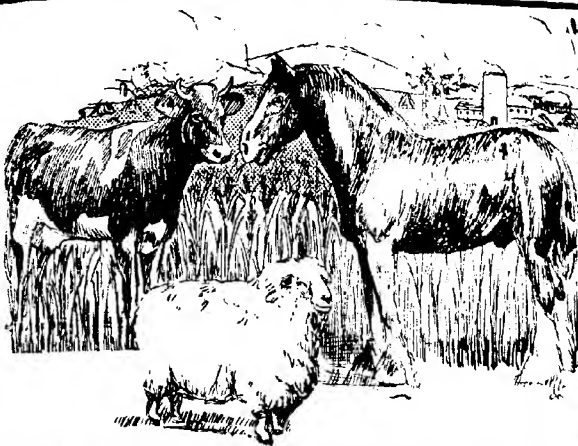
The pig industry in South Australia has not progressed as it should, in fact, in many quarters, its possible retrogression is viewed with alarm. The local Bacon Curers' Association have deemed the subject of such importance that they desire legislation to control the industry. They contend that the general standard of the pig has deteriorated, and the methods of feeding are not on sufficiently well-defined lines. Slaughtered animals very often betray the lack of proper feeding, which is not, in every instance, discovered by a cursory external examination, or by judging the animals by their handling qualities.

Briefly, the Association desire that every pig breeder or raiser should be licensed, and that all pigs which are submitted for sale should be branded with an approved brand. This would enable the curers to tell the animals yarded by the respective breeders and raisers, and consequently place them in a better position to gauge the quality of the product. The opinion that pigs which show signs of good killing qualities will always command the highest values is often misleading, by reason of the fact that very often such animals have not been finished off properly, and this condition cannot be definitely arrived at until after killing and curing. Many curers have experienced the condition of "soft" sides. A poorly finished and improperly fed pig will never produce the finest quality bacon.

There is no gainsaying the fact that in many respects local curers have cause to complain regarding the general type of bacon pig supplied to the market. Some of our breeders excel in producing a splendid type of finished pig, but it is a most difficult matter to impress on breeders and raisers the essential requirements of the trade. The majority of farmers are not concerned about the pigs when once they are sold. But it would be of mutual benefit to the bacon-curer and the pig-breeder if the latter would periodically visit the bacon factories and see the pig after it has been dressed; both will then be in a position to make comparisons. Curers welcome such visitors. Unfortunately, however, very few breeders avail themselves of this opportunity.

PRIZE FOR PEN OF PIGS.

The writer, realising the above facts, and the necessity for being able to impress definitely on breeders' minds the essential points of the class of pig required for the local trade, last year made a suggestion to the Bacon Curers' Association, that they should offer a substantial prize at the Royal Agricultural Society's Show for the best pen of four bacon pigs suitable for the local trade. The proposal is that the pigs are to be judged by the Show judge, and then one pen, other than the three selected as prizewinners by the Society's judge, will be chosen by representatives of the Bacon Curers' Association. These four pens of pigs will remain on the ground for two days of the Show to enable those interested in stockbreeding to view them. The pigs are then to be removed, slaughtered, dressed, exhibited, and judged by



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The farmer knows the damage and injury done by dodder, but there are many weeds to be found in inferior quality lucerne seed almost as dangerous. Our "STANDARD" Quality Hunter River Lucerne has an average growth of 98%, and is machine dressed to a purity of almost 100%. A high germination is assured.

SWEET CLOVER (MELILOTUS ALBA)
THE GREAT SOIL ENRICHING CROP.

Withstands frosts and extreme cold as well as hot, dry weather, and drought, and thrives well on land too low, too wet, or too alkaline for Lucerne. Will give a cutting of hay and a seed crop in one season.

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THE LARGEST AND LEADING SEED HOUSE IN VICTORIA

(F. H. BRUNNING PTY., LTD.),

64, ELIZABETH ST., MELBOURNE.

representatives of the Bacon Curers' Association, and the prize awarded according to their selection. To each carcass a card will be affixed setting out the age, the breed, and the live and dressed weights; further, each exhibitor will be asked to supply details of the system of feed and the class of food that has been given from the time of weaning up to the date of exhibition. It is also suggested that a prize be offered for the best essay on "Raising the Pig," the winner's paper to be published in the *Journal of Agriculture*. I contend that this scheme will be of great educational benefit, not only to men in the pig industry, but to livestock men generally.

AN EXPORT MARKET.

The opinion held by some that an export market is not required can hardly be accepted, in view of statistics of the export revenue of the Commonwealth. As regards the English market, it will be observed in the "Commonwealth Year Book" that in 1921 Australia did not derive any revenue from pig products. Professor Arthur J. Perkins (Director of Agriculture) has persistently advocated opening up an export business, but, unfortunately, his efforts have not met with much success. There is no denying the fact that Australia is missing an opportunity of getting a footing on the English market, and the longer the matter is deferred, the harder it will become to establish our product. Many persons argue in the strain that the price on the English market is less than that which obtains locally. This is admitted; but the most important facts concerning the position are either ignored entirely or not taken into consideration sufficiently. Even if prices on the overseas market are somewhat lower than local values, it would be a step in the right direction to export a small trial shipment. This would open up a channel whereby more wealth could be returned to this country, and it would have a decided influence in establishing the industry with a greater degree of security; and, further, it would assure a market for the product of the breeder and curer. It should be borne in mind that Denmark, prior to the war, was exporting to England 40,000 pigs per week in the form of bacon. Even in the year 1922 we find that the Danish Government subsidised the bacon industry in order that some incentive might be given to exporters of pig products.

PIGS, CEREALS, AND POTATOES.

One frequently hears a reference made to the small number of pigs per 1,000 head of population in the Commonwealth. It might be asked, "Can encouragement be given to stimulate greater activity in the industry, without creating an over-supply of pigs, which would have, as an ultimate result, low prices?" There is, however, one aspect of the pig industry which must not be overlooked, and that is the utilisation of cereals to better advantage. Wheat farmers of to-day are quite reconciled to trade their product in its original form; but what would be the position if the wheat market should drop considerably? Certainly any great quantity of wheat could not be profitably fed to the pigs, because if this plan were put into general practice, the increased production in animals would soon glut the markets.

Have Eggs at Your Own Price.



If you "keep a few fowls" the price of eggs is largely what you make it. If you are forced to go and pay the current price at the Corner Grocery simply because your own birds are not doing their

duty, then it is obvious that you are paying two ways for your eggs.

That condition need not go on. Over half a million other poultry keepers have found the way to bigger egg returns. You too can do it.

Read these letters below and resolve that you will start using Karswood Poultry Spice to-morrow.

FROM A PROMINENT FANCIER.

Model Poultry Yards, Merewether,
Via Newcastle, August, 1922.

Dear Sirs—This is to certify that I have used your Karswood Poultry Spice, and for getting birds into show condition and health I find nothing better; also to increase the egg yield.

I am an exhibitor in all the leading Shows in N.S.W., and can recommend Karswood Spice to all who wish to be amongst the winning cards; also to keep their flocks in the best of health and condition and to keep the egg boxes full.

You may use this as a guarantee of my faith in Karswood Spice, as I am one of the leading fanciers in N.S.W., and am known all over the world. So if this is of any use to you as a testimonial, I shall be pleased to see it amongst your advertisements.

(Signed) C. A. CLARKE.

249, Bathurst Street, Hobart,
Tasmania, February 1st, 1923.

Dear Sirs—I tried Karswood with the best results. As a tonic it holds a high place in my estimation. In this cold, wet climate last winter I tested it with two lots of White Leghorn pullets. One lot with Karswood, the other without. Karswood pen laid five weeks before the others, and are still laying. The feeding and housing has been the same throughout.

(Signed) J. SMALES.

HUNDREDS OF EGGS.

28, Edward Street,
North Sydney, May 3rd, 1923.
Gentlemen—I should like to say that I have used your Poultry Spice

for two years—ever since I started to keep fowls. I have never had more than eight White Leghorn fowls, and have had hundreds of eggs from them. Your Spice was recommended to me by a friend, who brings it to me from town, as Mr. Meadows, who supplies me with pollard and grain, does not keep it.

Wishing you every success.
(Signed) P. M. BATTLE.

Corrie Road, P.O., North Manly,
July 20th, 1923.

Dear Sirs—Your advertisement in the *Evening Sun* this week came to my notice. I have a small poultry farm, and am a very enthusiastic user of Karswood. My first trial of it was on a yard of second season hens. The result was they gave twice as many eggs in that season as they gave in their first season.

I find it brings the young table birds on very rapidly. At three months old on Karswood they are equal in size to five months old without Karswood. That means a smaller feed bill and quick returns.

I am overstocked with the empty 7lb. tins, and am wondering if you have any idea of collecting and buying the tins back again. It is rather a problem how to dispose of them, and they are too good to throw away.

I never have "Poultry" paper, but *non de plane* for it "Game Chick."

(Signed) MISS M. SHORT.

MAKE THIS TEST.

Go to your local grocer, store-keeper, or produce dealer. Get a 1s. packet of Karswood Poultry Spice. Test it for a fortnight on half a dozen hens. Do not expect an immediate avalanche of eggs. Karswood works naturally, not suddenly. Within a fortnight or three weeks you will notice a decided improvement in the health, virility, and productiveness of the Karswood birds.

NOTE THE ECONOMY.

1s. packet supplies 20 hens 16 days.
2s. packet supplies 20 hens 32 days.
13s. tin (7lbs.) supplies 140 hens 32 days.
14lbs. tins, 25s. 28lbs. tins, 48s.
Makes 12 Hens Lay for 4d. a Day.

AGENTS FOR SOUTH AUSTRALIA—

S. C. EYLES & Co.,
CURRIE ST., ADELAIDE.

"Makes 12 hens lay
for 4d. a day."

KARSWOOD POULTRY SPICE

The frequent occurrence of the collapse of the potato market could be obviated to an extent by utilising them for pig feed. Potatoes, in combination with grain and dairy by-products, make an ideal and cheap ration.

In the event of entering upon an export trade, we would doubtless find it difficult, and perhaps disappointing, for a few years; but, nevertheless, with practical experience of demands and markets, we would be in a position to command a share of the trade. I feel confident that we can produce the finest bacon in the world, for we have the food and climatic conditions essential for such a purpose, and the systems of breeding and producing the right type of animal would readily be accepted by the producers.

Every exporting country highly prizes the revenue derived from export markets. When the German markets were closed to Danish exports in 1887, the Danes immediately transferred their business to England; but they soon realised that they did not supply the article which commanded the trade, and a subsequent investigation proved that a better class of bacon-pig was demanded. They set out to accomplish this end, and they have succeeded. It is well known to every pigbreeder that huge sums of money are received by the Danes yearly from the English markets.

Then, again, we find the Canadian Government, after learning that their product was losing favor, appointed a Commission in 1910 to visit England and the Continent to investigate the bacon and pig industries and make recommendations.

The values in 1921, of pig products from Denmark and Canada, exported to the English markets were £17,000,000 and £7,000,000 respectively.

LOCAL REQUIREMENTS.

* However, one cannot with any degree of confidence recommend greater activity in breeding operations without the danger of bringing about an over-supply and low prices. Owing to the prolificacy of the pig, great increase in the number of breeders would cause an over-supply. Therefore, this article will deal with the question entirely from the point of view of local conditions. There are many phases of the industry which have been repeatedly quoted by various writers, and yet we have not secured that uniformity of style and finish which is so much sought after.

SIZE.

To-day there is a most noticeable lack of attention to the size, the conformation, and the quality of the animals. It must not be imagined that because a pig scales the desired weight, and is in prime condition, that it comes up to the standard of the curer. Many animals are too short in the body, and they dress sides which do not possess uniform back fat and the requisite amount of fat in proportion to lean meat. The blocky or chubby animal is not appreciated any more than the one possessing mostly skin and bone; such a pig generally has good length and depth, but lacks thickness, or, in other words, does not carry sufficient flesh. This class of animal is the least profitable from the raiser's point of view, for, as a general rule, not a great amount of

the right class of food is needed to finish it off. The cost of extra grain that would have been consumed in topping off would be more than compensated for by the enhanced prices to be obtained for a "prime" conditioned animal.

WEIGHT.

There is also a desire to over-estimate the value of weight. The day of the big pig is past. It is false economy to keep pigs until they are extra weighty, because with animals of this class considerably more feed is required to produce a pound of dressed weight. The large pig is invariably on the market during the warm weather, and is probably an autumn pig kept going through the winter months, during which period it does not make as much growth as animals born in the warmer months. Then, as spring approaches, there are more dairy by-products available, and with more favorable weather conditions and better feeding stuffs, the growth rapidly increases; very often the disadvantage of marketing a few animals at once causes the owner to postpone forwarding them for sale until at last he realises that they are weighty, or that the grain bin has to be frequently refilled. There is only a limited demand for heavy pigs, and as a general rule the selling price works out less per pound than that of the bacon type.

THE CURERS' REQUIREMENTS.

The question naturally arises, how are we to know what is required, and what methods must be adopted to obtain the desired results? We are often reminded that the curers ask for a pig dressing 110lbs. to 120lbs., and then we are informed they desire heavier animals. From the point of view of the curer, a lighter animal fulfils the warm weather demands, but during the milder months a heavier side is needed and at the same time a percentage of the heavier class of pig is always required.

In answer to such queries, it might be pointed out that the "demonstration prize," as suggested earlier in this article, should readily show the class of pig required; but at the same time, such matters as the breeds of pigs, breeding, rearing, feeding, and treatment enter largely into the question.

Pig breeding generally follows where dairying is practised. Whilst it cannot be denied that milk-fed pigs (animals fed on other foods in conjunction with milk and its products) produce the finest-quality pork; yet pig-raising can be practised without the aid of dairy by-products. In the latter case, it means the selection of deep milking sows; a longer suckling period, and, after weaning, food that will promote growth and flesh. The experiments carried out by Professor Perkins with by-products from the Abattoirs conclusively proved that pigs can be raised successfully without dairy by-products. Where skim-milk, butter-milk, and whey are not available, it should be the principal aim of the breeder to endeavour not to breed too often, but rather to study the sow and the development of the young pigs.

Therefore, in the first place, it becomes necessary to give the qualifications of a good bacon pig, irrespective of the breed. These are as follows:—

* (1) *Head—Neat.*—The pig that is very long in the head is usually narrow between the eyes; has seldom a very strong constitution, and has rather more bone than is required. On the other hand, the pig that is very short in the head is usually too fat; too heavy in the fore end; thick in the neck, and heavy in the shoulders. Neat in the head means neither too long nor too short a nose. The ears should be fairly large, soft, and pliable, and should fall a little to the front without actually being lopped.

(2) *Light Neck and Shoulder.*—The coarser parts of a side of bacon, and those which bring the lowest price, are the neck and shoulder. The lighter these parts, the better the side, and the higher the price it will make.

(3) *Deep Heart and Well-sprung Ribs.*—These are the weak points of the majority of animals; but they are, perhaps, the most important of those here enumerated. For stock purposes, breeders should, therefore, select only those animals which have these characteristics in a prominent degree.

(4) *Thick Loins.*—A pig with a good loin is almost invariably well ribbed and has a strong constitution. From a breeder's and feeder's point of view, a good loin is most essential.

(5) *Stout Thighs.*—This means a pig thoroughly well developed in the hams. The hams are the most important part of the animal, and in the case of pigs killed for the ham and middle trade, are the most valuable part of the carcass, provided they are not too fat.

(6) *Short Legs.*—A pig that is long in the leg is nearly always flat in the ham and lacking in plumpness.

(7) *Long and Silky Hair.*—Good hair is an indication of strength of constitution, as well as lean meat. The absence of hair generally proceeds from close breeding, and indicates a tendency to excessive fatness.

(8) *A Long Side of Moderate Depth with Thick Flank.*

*Department of Agriculture, Ireland.

(To be continued.)

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EXPERIMENTAL FARM HARVEST REPORTS.

VEITCH'S WELL EXPERIMENTAL FARM.

[By L. SMITH, Manager.]

This farm is situated in the hundred of Allen, 158 miles from Adelaide, on the Loxton Railway. It consists of about 3,800 acres of land, the bulk of which is sandy, the remainder running to shallow light-loam soils overlying hard limestone rock—conditions similar to thousands of acres of surrounding country.

THE SEASON 1923.

The returns set out in the following tables show that the season was a good one, and yields were considerably above the average. The total rainfall was 13.33in. Of this 11.75in. could be regarded as rain useful to the growing crop. The bulk of the area seeded was put in dry during April and May, and germinated well after the first rains on the 6th of May, this being exceptionally late for the season to break in this district.

Heavy winds in June and July cut the young plants with sand drift and in many cases sandy areas did not recover from the ill effects. A dry October reduced the yields somewhat.

RAINFALL.

The distribution of the rainfall for the year, together with that for each year since 1917 is set out in the table below:—

Rainfall Distribution—Veitch's Well, 1909-1923.

	Means. 1909- 1916.	1917.	1918.	1919.	1920.	1921.	1922.	1923.	Means. 1909- 1923.
	In.	In.	In.	In.	In.	In.	In.	In.	In.
January	0.34	0.45	0.07	0.20	0.10	1.61	0.48	0.04	0.38
February	0.89	2.60	0.23	5.49	—	0.97	0.09	0.03	1.10
March	1.44	0.78	0.49	0.36	0.33	1.24	—	—	0.98
April	0.28	0.24	1.00	0.26	0.33	0.06	0.89	—	0.33
May	1.34	1.15	1.31	1.88	1.45	2.19	3.06	1.75	1.57
June	1.71	1.01	1.08	0.37	1.29	0.78	1.21	2.95	1.49
July	1.16	1.14	1.39	0.29	0.79	0.91	0.91	2.81	1.17
August	1.38	1.91	2.36	0.53	2.19	1.28	0.70	1.59	1.44
September	1.94	2.01	0.22	0.76	3.10	1.54	1.10	1.97	1.75
October	0.79	2.38	0.98	0.45	3.66	0.45	0.73	0.65	1.01
November	1.07	1.72	0.07	0.62	0.95	1.03	0.09	0.03	0.87
December	0.73	1.21	—	2.03	1.31	0.30	1.02	1.51	0.88
Total	13.07	16.60	9.20	13.24	15.50	12.36	10.28	13.33	13.00
"Useful" rain (April- November)	9.67	11.56	8.41	5.16	13.76	8.24	8.69	11.75	9.66

The distribution of the "useful" rainfall is set out in the next table. The amount gauged is shown to be above the average. Good seeding and winter rains fell.

	1923. In.	Means. 1909-1923. In.
Seeding rains (April-May)	1.75	1.90
Winter rains (June-July)	5.76	2.66
Spring rains (August-October)	4.21	4.23
Early summer rains (November)	0.03	0.87
Total "Useful" rainfall	11.75	9.66

CROPS.

In the fields, cereals were the only crops grown.

In small blocks near the homestead, lucerne and Wimmera rye-grass gave good feed. Special attention is called to Wimmera rye-grass as being suitable for this district, both on sandhills and flats.

Hay Crops.—A block containing 71.54 acres in Field No. 2 was sown with Cumberland, Baroota Wonder, Late Gluyas, and King's Early wheats. From this area a total of 150 tons of hay was cut for an average yield of 2 tons 1cwt. 105lbs. per acre.

The following table sets out hay crops harvested at Veitch since 1910:—

Hay Returns—Veitch's Well, 1910-1923.

Year.	Rainfall. Total	Rainfall. "Useful"	Area. Acres.	Total Yield.			Yield per Acre.		
	In.	In.		T.	C.	L.	T.	C.	L.
1910	16.91	10.15	82.00	82	0	0	1	0	0
1911	13.36	7.28	121.50	74	18	0	0	12	37
1912	12.16	10.87	218.00	109	0	0	0	10	0
1913	14.95	8.27	140.00	70	0	0	0	10	0
1914	6.24	3.66	100.00	Total failure.					
1915	9.83	8.79	158.00	180	0	0	1	2	88
1916	16.69	15.29	127.08	243	0	0	1	18	27
1917	16.60	11.56	69.01	110	0	0	1	11	98
1918	9.20	8.41	78.89	93	16	0	1	3	87
1919	13.24	5.16	109.88	45	0	0	0	8	21
1920	15.50	13.76	122.21	220	0	0	1	16	0
1921	12.36	8.24	65.59	90	0	0	1	7	49
1922	10.28	8.69	42.94	60	0	0	1	7	106
1923	13.33	11.75	71.54	150	0	0	2	1	105
Means	12.90	9.42	—	—	—	—	1	2	20

The season's yield is above the average, and its inclusion in the mean for the farm brings that figure up to 1 ton 2cwt. 20lbs. per acre for the 14-year period 1910-1923.

Oat Crops.—All told 116.49 acres of oats were harvested for grain. These were sown in Fields Nos. 2A and 2B, being drilled in on fallow

Metters Wind Mill

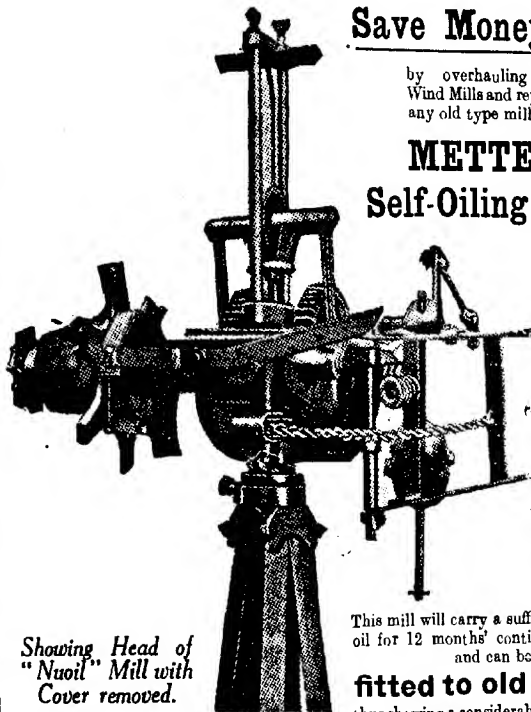
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This mill will carry a sufficient supply of
oil for 12 months' continuous working,
and can be

fitted to old towers,
thus showing a considerable saving in cost.

Get in touch with us at once, advise us the pattern of your old
mill, and give the height of the tower. We will be pleased to
advise you how to make the best use of your old materials.

We make up several different types of Mills,
All of which are kept up-to-date.

Write for a full list of Mills, Pumps, Fittings—prices have been considerably
reduced—posted free to any address, or

INSPECT AT OUR SHOWROOM:

METTERS Limited,

142, RUNDLE STREET, ADELAIDE.

between March 29th and April 23rd at the rate of 40lbs. of seed, with 1cwt. of superphosphate per acre. Fields No. 2A and 2B were fallowed June 1st to 29th, cultivated September 2nd to 21st, harrowed the first week in October and finally harrowed after seeding.

The results secured are set out below:—

Oat Variety Yields—Veitch's Well, 1923.

Variety.	Area. Acres.	Total Yield.		Yield per Acre.	
		B.	L.	B.	L.
Scotch Grey	16.83	498	6	29	24
Early Burt	11.40	273	4	23	39
Rua Kura	13.3	294	0	22	4
Kelsall's	14.34	264	18	18	18
Algerian	29.88	468	32	15	28
Kherson	25.24	312	32	12	16
Laehlan	5.5	54	0	9	33
Farm average, 1923 . .	116.49	2,165	12	18	24

Of the oat varieties tried on this farm, Early Burt and Rua Kura are considered to be the most suitable, as they can be harvested and cleaned up out of the way before the other cereals are ripe. Scotch Grey has proved a good and consistent grain yielder, but is rather short in the straw to be a good "hay" variety.

The inclusion of this season's return in the mean oat yield of the farm increases it from 17bush. 25lbs. to 17bush. 30lbs. over a period of eight years. The yields for the past eight years are set out in the following table:—

Oat Returns—Veitch's Well, 1916-1923.

Year.	Total Rainfall.	"Useful" Rainfall.	Area. Acres.	Total Yield.		Yield per Acre.	
	In.	In.		Bush.	Lbs.	Bush.	Lbs.
1916	16.69	15.29	12.39	478	37	38	26
1917	16.60	11.56	50.19	1,396	35	27	33
1918	9.20	8.41	40.43	253	24	6	11
1919	13.24	5.16	39.17	379	12	9	27
1920	15.50	13.76	157.08	2,110	37	13	18
1921	12.36	8.24	36.30	623	30	17	7
1922	10.28	8.69	84.89	876	20	10	13
1923	13.33	11.75	116.49	2,165	12	18	24
Means	13.40	10.36	—	—	—	17	30

Barley Crops.—The barley crops harvested for grain were all grown on fallow over an area of 78.47 acres. The ground was fallowed on July 3rd to 31st and cultivated the last week in September. and

harrowed again in October, was seeded May 21st to 29th with 50lbs. of seed and 1cwt. of superphosphate per acre. The yields obtained, together with the farm average for the year are detailed in the following table:—

Barley Variety Yields—Veitch's Well, 1923.

Variety.	Area. Acres.	Total Yield.		Yield per Acre.	
		B.	L.	B.	L.
Tunis 4B (Exp. Plots) ..	28.18	758	38	26	46
Tunis 4B	40.46	890	40	22	1
Tunis I. (Seed Plots) ..	9.83	214	7	21	30
Farm average, 1923 ..	78.47	1,863	35	23	38

The next table shows the returns secured from the barley crops grown on this farm since 1915:—

Barley Returns—Veitch's Well, 1915-1923.

Year.	Total Rainfall.	"Useful" Rainfall.	Area. Acres.	Total Yield. Bush. lbs.	Yield per Acre.	
	In.	In.			Bush. lbs.	Bush. lbs.
1915	9.83	8.79	22.72	248	9	10
1916	16.69	15.29	20.10	517	20	25
1917	16.60	11.56	44.03	1,104	10	25
1918	9.20	8.41	49.68	305	5	6
1919	13.24	5.16	83.18	185	46	2
1920	15.50	13.76	73.20	2,232	48	30
1921	12.36	8.24	69.81	1,077	28	15
1922	10.28	8.69	72.24	947	38	13
1923	13.33	11.75	78.47	1,863	35	23
Means ..	13.00	10.18	—	—	—	16

The mean yield of 16bush. 50lbs. is not a high one for barley, but this is the best yielding cereal we have for bulk feed for pigs.

Wheat Crops.—With the exception of experimental plots all wheat crops were grown in Fields Nos. 1A, 1B, 3A, 3C, 3D, 10A, 10B, and 11A.

The fallow land in Fields Nos. 1A, 1B, 3A, 3C, 3D, was ploughed from July 20th to August 18th, and cultivated in September and seeded April 23rd to May 12th with 60lbs of seed and 1cwt. of superphosphate per acre. The bulk of Fields Nos. 10A, 10B, and 11A was new ground and was skim ploughed where it was found necessary before drilling, and seeded with 60lbs. of seed and 75lbs. of superphosphate per acre.

Out of an area of 190 acres in these three fields only 50 acres were harvested, as, unfortunately, a fire swept over the crops and destroyed a very promising yield.

The yields obtained from all varieties grown are detailed in the next table:—

Wheat Variety Yields—Veitch's Well, 1923.

Variety.	Field Grown. Area.		Total Yield.		Yield per Acre.	
	No.	Aeres.	B.	L.	B.	L.
Sultan	1A	19.84	507	10	25	34
Walker's Wonder	3c & 3d	15.17	371	25	24	29
Red Russian	1A	16.55	386	25	23	15
Maharajah	3c & 3d	15.25	311	24	20	25
Canaan	—	5.99	120	24	20	6
Triumph	1A	27.82	529	11	19	1
Queen Fan	1A	16.23	299	40	18	28
Rajah	3c & 3d	6.94	123	0	17	43
Gluyas Late	3c & 3d	94.18	1,614	47	17	9
Cumberland	2B & 2c	1.75	29	12	16	41
Gluyas Early	3A	29.08	446	12	15	21
Caliph	10A & B	50.00	750	50	15	1
President	3c & 3d	9.18	137	0	14	55
Ford	3c & 3d	2.57	38	19	14	53
Mixed	3c & 3d	8.00	117	0	14	38
Felix	3c & 3d	12.20	177	0	14	30
Emperor	3c & 3d	8.99	109	7	12	8
Currawa	3c & 3d	4.42	53	21	12	4
Yandilla King	3c & 3d	3.10	34	22	11	5
Unknown	3c & 3d	3.08	33	22	10	48
Florence	3c & 3d	2.85	30	12	10	36
Fortune	3c & 3d	3.23	33	32	10	23
Le Huguenot	2c & F	4.16	40	52	9	49
Baroota Wonder (Sel. 1)	4A	13.72	87	50	6	24
Baroota Wonder	Exp.	28.18	626	40	22	14
Baroota Wonder	Exp.	3.27	52	41	16	7
Farm average, 1923		405.75	7,060	58	17	24

The yields recorded are above the average and the first twelve wheats and Baroota Wonder are worth a place on any mallee farm.

The next table gives details of the wheat crops grown on the farm since 1909:—

Wheat Returns—Veitch's Well, 1909-1923.

Year.	Total "Useful"		Area.	Total		Yield per Acre.
	Rainfall.	Rainfall.		Yield.		
	In.	1A.	Acres.	Bush. lbs.		Bush. lbs.
1909	14.41	13.04	22.00	396	0	18 0
1910	16.91	10.15	197.50	2,156	0	10 55
1911	13.36	7.28	620.90	5,080	30	8 11
1912	12.16	10.87	569.00	5,544	18	9 45
1913	14.95	8.27	791.40	4,742	28	6 0
1914	6.24	3.66	951.00	325	30	0 21
1915	9.83	8.79	602.11	6,681	51	11 6
1916	16.69	15.29	407.74	7,102	20	17 25
1917	16.60	11.56	469.91	7,156	50	15 14
1918	9.20	8.41	287.89	1,905	28	6 37
1919	13.24	5.16	263.62	1,419	32	5 23
1920	15.50	13.76	287.52	6,384	55	22 12
1921	12.36	8.24	553.61	6,256	18	11 18
1922	10.28	8.69	427.84	4,219	34	9 52
1923	13.33	11.75	405.75	7,060	58	17 24
Means	13.00	9.66	—	—	—	11 19

Although the average yield of 11bush. 19lbs. per acre is not very high, it is quite satisfactory for these particular conditions. With well-worked fallow land, clear of stumps, much better returns can be expected.

The behaviour of the majority of varieties of wheats grown on this farm since 1918 is shown in the table below:—

Yields of Varieties of Wheat—Veitch's Well, 1918-1923.

Variety.	1918.	1919.	1920.	1921.	1922.	1923.	Means, 1918- 1923.
	B. L.	B. L.	B. L.	B. L.	B. L.	B. L.	B. L.
Red Russian	14 45	7 36	27 8	7 14	9 10	23 15	14 51
Queen Fan	2 54	4 36	26 18	13 14	14 5	18 28	13 16
Baroota Wonder . .	5 30	6 7	26 13	11 23	11 6	16 59	12 53
Yandilla King . . .	10 35	3 18	25 10	11 37	11 8	11 5	12 9
Gluvas Early	9 53	6 44	19 19	14 56	4 34	15 21	11 48
Cumberland	8 29	5 10	18 47	10 11	10 16	16 41	11 36
Late Gluvas	3 40	2 13	19 43	11 43	12 57	17 9	11 14
Fortune	9 18	9 6	16 56	9 49	10 36	10 23	11 1
Federation	4 9	4 38	23 2	10 12	10 12	—	—
King's Early	5 9	4 34	17 25	7 59	8 0	—	—
Caliph	—	7 50	25 28	11 53	7 39	15 1	—
Triumph	—	—	14 22	13 25	14 0	19 1	—
Sultan	—	—	—	—	14 41	25 34	—
Walker's Wonder . .	—	—	—	—	15 4	24 29	—
Canaan	—	—	—	—	14 16	20 6	—
President	—	—	—	—	16 23	14 55	—
Rajah	—	—	—	—	12 58	17 43	—
Maharajah	—	—	—	—	9 5	20 25	—
Felix	—	—	—	—	10 11	14 30	—
Emperor	—	—	—	—	11 53	12 8	—
Ford	—	—	—	—	—	14 55	—
Currawa	—	—	—	—	—	12 4	—
Florence	—	—	—	—	—	10 36	—
Le Huguenot	—	—	—	—	—	9 49	—
Farm average . .	6 37	5 23	22 12	11 18	9 52	17 24	12 8
	In.	In.	In.	In.	In.	In.	In.
Total rainfall . .	9.20	13.24	15.50	12.36	10.28	13.33	12.32
"Useful" rainfall	8.41	5.16	13.76	8.24	8.69	11.75	9.34

EXPERIMENTAL PLOTS.

A series of permanent experimental plots, on which the various treatments to be given are to be continued for a number of years on the same blocks of land, has been mapped out. The series consists of manurial and cultivation tests with both wheat and barley.

Manurial Plots with Wheat.

The permanent manurial plots with wheat—being worked on the following rotation:—(1) Pasture, (2) bare fallow, (3) wheat—carried their fourth crops this season, with the following results:—

Permanent Manurial Plots with Wheat—Veitch's Well, 1920-1923.

Plot. Manuring per Acre.

- 1 $\frac{1}{2}$ wt. superphosphate.
- 2 1wt. superphosphate.
- 3 2cwts. superphosphate.
- 4 3cwts. superphosphate.
- 5 No manure.
- 6 1wt. superphosphate, $\frac{1}{2}$ wt. sulphate of potash.
- 7 1wt. superphosphate, $\frac{1}{2}$ wt. nitrate of soda.
- 8 1wt. superphosphate, $\frac{1}{2}$ wt. sulphate of potash, $\frac{1}{2}$ wt. nitrate of soda.
- 9 No manure.

Plot.	Yield per Acre.						Means.
	1920.		1921.		1922.		1920-1923.
	B.	L.	B.	L.	B.	L.	B. L.
1	28	43	15	47	12	15	21 53
2	28	19	17	53	13	6	25 40
3	32	29	19	9	12	49	28 14
4	31	37	19	18	12	4	26 35
5	24	59	14	33	13	13	18 24
6	28	18	19	47	13	14	20 50
7	26	59	17	47	12	50	23 14
8	29	53	18	30	12	11	22 19
9	21	18	15	49	13	26	16 51

Cultivation Tests with Wheat.

A series of experimental plots, worked on the following rotation:—(1) Pasture, (2) bare fallow, (3) wheat, and designed to test different methods of cultivating bare fallow for growing wheat, was commenced in 1920. The results secured from these plots are set out below:—

Cultivation Plots with Wheat—Veitch's Well, 1920-1923.

Plot. Treatment.

Early Fallow (June-July).

- 10 Ploughed 4in. deep and harrowed within a few days. (Cultivated whenever weeds or a crust rendered necessary.)
- 11 Ploughed 4in. deep, and left rough throughout the winter. (Cultivated whenever weeds or a crust rendered necessary.)
- 12 Ploughed 4in. deep, rolled within a few days, and cultivated or harrowed according to circumstances. (Cultivated or harrowed whenever weeds or a crust rendered necessary.)

Late Fallow (September).

- 13 Ploughed 2in. deep, and cultivated whenever weeds or a crust rendered necessary, but not rolled.
- 14 Ploughed 4in. deep, heavily rolled the same day as ploughed, and immediately harrowed. (Cultivated whenever weeds or a crust rendered necessary.)

Plot.	Yield per Acre.						Means.
	1920.		1921.		1922.		1920-1923.
	B.	L.	B.	L.	B.	L.	B. L.
10	27	5	17	28	12	57	22 10
11	28	19	17	8	13	31	21 48
12	27	33	13	45	12	44	21 35
13	24	19	14	17	12	51	23 28
14	26	33	13	16	12	28	18 41

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Manurial Plots with Six-rowed Barley—Veitch's Well, 1920-1923.

Plot. Manuring per Acre.

- 28 $\frac{1}{2}$ cwt. superphosphate.
 27 1 cwt. superphosphate.
 26 2 cwt. superphosphate.
 25 3 cwt. superphosphate.
 24 No manure.
 23 1 cwt. superphosphate, $\frac{1}{2}$ cwt. sulphate of potash.
 22 1 cwt. superphosphate, $\frac{1}{2}$ cwt. nitrate of soda.
 21 1 cwt. superphosphate, $\frac{1}{2}$ cwt. sulphate of potash, $\frac{1}{2}$ cwt. nitrate of soda.
 20 No manure.

Plot.	1920.		Yield per Acre.				Means.	
	B.	L.	1921.	1922.	1923.		1920-1923.	
28	34	22	25	27	20	48	27	29
27	28	15	28	49	22	22	30	16
26	29	47	21	33	20	13	31	44
25	25	6	23	42	17	21	32	32
24	27	36	14	40	19	10	17	36
23	26	3	21	46	20	9	24	20
22	32	22	19	15	20	25	27	30
21	25	6	19	15	20	1	27	34
20	24	10	15	39	16	39	20	42

Cultivation Tests with Six-rowed Barley.

As in the case with the manurial plots, the cultivation tests on the (1) Pasture, (2) bare fallow, (3) wheat rotation, were duplicated as to treatment with six-rowed barley as the crop, instead of the wheat.

Plot. Treatment.

Early Fallow (June-July).

- 19 Ploughed 4 in. deep, and harrowed within a few days. (Cultivated whenever weeds or a crust rendered necessary).
 18 Ploughed 4 in. deep, and left rough through the winter. (Cultivated whenever weeds or a crust rendered necessary).
 17 Ploughed 4 in. deep, rolled within a few days, and cultivated or harrowed according to circumstances. (Cultivated whenever weeds or a crust rendered necessary).

Late Fallow (September).

- 16 Ploughed 2 in. deep, and cultivated whenever weeds or a crust rendered necessary, but not rolled.
 15 Ploughed 4 in. deep, heavily rolled the same day as ploughed, and immediately harrowed. (Cultivated whenever weeds or a crust rendered necessary.)

Plot.	1920.		Yield per Acre.				Means.	
	B.	L.	1921.	1922.	1923.		1920-1923.	
19	29	10	19	34	18	39	28	16
18	26	7	18	12	16	45	25	42
17	30	41	23	29	17	0	26	19
16	34	8	20	17	19	7	26	44
15	30	3	20	19	18	45	27	2

Rate of Seeding Tests with Wheat.

A block of land in a fallowed field has been selected during each of the past nine years, and has been divided into plots, all of which have received a dressing of 1cwt. superphosphate per acre, but each one had a different quantity of seed wheat sown on it. The same variety of wheat was used on all plots in each individual year, and other than the amount of seed used on the plots, their treatment was identical. The results obtained over this period, 1915 to 1923, are set out below:—

*Quantitative Seed Tests—Veitch's Well, 1915-1923.**(Tests on Wheat Sown with 1cwt. Superphosphate per Acre.)*

Year.	30lbs. Wheat.		45lbs. Wheat.		60lbs. Wheat.		80lbs. Wheat.		Total "Useful" Rainfall.	
	B.	L.	B.	L.	B.	L.	B.	L.	In.	In.
1915	9	47	10	9	10	45	9	57	9.83	8.79
1916	18	9	19	1	19	5	18	39	16.69	15.29
1917	22	53	23	42	23	56	26	31	16.60	11.56
1918	7	20	8	39	8	53	8	41	9.20	8.41
1919	7	21	7	20	7	51	8	34	13.24	5.16
1920	24	56	25	49	25	12	27	29	15.50	13.76
1921	17	13	19	31	19	16	18	31	12.36	8.24
1922	17	22	17	26	17	21	17	37	10.28	8.69
1923	17	35	17	22	15	18	14	17	13.33	11.75
Means ..	15	51	16	33	16	24	16	42	13.00	10.18

Although the differences between the results in the mean yields are not very marked, they are sufficient to show that in this district 30lbs. of seed is not sufficient for the best results, and that at least 45lbs. should be used.

Rate of Seeding Tests with Barley.

This season a block of "new" land, about 8 acres in extent, was divided into four plots, the whole of which was at seeding dressed with 1cwt. superphosphate per acre, but each plot received a different amount of seed barley (Tunis 1) to the acre. The yields obtained are set out below:—

*Quantitative Seed Tests—Veitch's Well, 1922-1923.**(Tests on Barley Sown with 1cwt. Superphosphate per Acre.)*

Year.	20lbs. Barley.		30lbs. Barley.		40lbs. Barley.		50lbs. Barley.		60lbs. Barley.		70lbs. Barley.	
	B.	L.	B.	L.	B.	L.	B.	L.	B.	L.	B.	L.
1922	4	33	5	5	6	28	8	23	8	18	6	21
1923	21	48	25	26	20	33	24	8	—	—	—	—
Means ..	13	16	15	16	13	31	16	16	—	—	—	—

Fertiliser Tests with Wheat.

It will be some years before the results to be secured from the permanent manurial plots can be used as a basis of comparison, and as tests with various dressings of superphosphate on wheat crops have been conducted on fallow land, the yields obtained over the past nine years are tabulated as follows:—

Quantitative Fertiliser Tests—Veitch's Well, 1915-1923.

Year.	No Manure.		½wt. Super.		1wt. Super.		2cwts. Super.		3cwts. Super.	
	B.	L.	B.	L.	B.	L.	B.	L.	B.	L.
1915	11	52	13	15	13	43	13	40	13	19
1916	13	39	17	7	18	49	18	32	21	31
1917	20	47	23	48	25	30	21	17	25	15
1918	5	17	6	20	7	28	8	22	9	9
1919	9	15	9	23	9	43	10	37	8	58
1920	23	8	28	43	28	19	32	29	31	37
1921	15	11	15	47	17	53	19	9	19	18
1922	13	20	12	15	13	6	12	49	12	4
1923	18	24	21	53	25	40	28	14	26	35
Means	14	33	16	31	17	48	18	21	18	38

MILANG HERD TESTING ASSOCIATION.

RESULTS OF BUTTERFAT TESTS FOR MAY, 1924.

Herd No.	Average No. of Cows in Herd.	Average No. of Cows in Milk.	Milk.		Butterfat.	
			Per Herd during May.	Per Cow during May.	Per Herd during May.	Per Cow during May.
			Lbs.	Lbs.	Lbs.	Lbs.
4/A	25-00	18-52	13,290	531-60	591-37	23-65
4/B	40-00	23-74	14,560	364-00	484-39	12-11
4/C	26-03	22-45	9,715	373-22	397-51	15-27
4/D	22-00	9-15	9,655	438-86	331-34	15-06
4/E	16-65	13-06	8,270-5	496-72	298-42	17-92
4/F	20-00	10-00	8,246	412-30	360-78	18-04
4/G	26-45	18-58	8,873-5	335-48	333-72	12-62
4/H	24-32	12-06	7,244-5	297-88	303-04	12-16
4/I	25-00	15-00	7,198	287-92	255-54	10-22
4/J	50-00	25-42	9,434-5	188-69	291-07	5-82
4/K	16-00	14-67	6,267	391-69	256-55	16-03
4/L	37-00	28-58	13,504	364-97	591-63	15-99
4/M	21-10	13-10	5,905-5	279-88	236-87	11-23
4/N	43-00	22-10	18,716	435-26	740-34	17-22
4/O	40-00	29-00	23,234-5	580-88	916-55	22-91
4/P	50-00	19-97	5,859	117-18	245-74	4-91
4/Q	35-00	31-00	13,407-5	383-07	518-96	14-83
4/R	15-00	6-00	3,286	219-07	146-36	9-76
Means	29-59	18-99	10,370-36	350-51	405-57	13-71

MOUNT GAMBIER AND DISTRICT HERD TESTING ASSOCIATION.

RESULTS OF BUTTERFAT TESTS FOR MAY, 1924.

Herd No.	Average No. of Cows in Herd.	Average No. of Cows in Milk.	Milk.			Butterfat.		
			Per Herd during May.	Per Cow during May.	Per Cow August to May.	Per Herd during May.	Per Cow during May.	Per Cow August to May.
			Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.
2/A	13-81	8-97	3,057	221-36	4,771-48	172-17	12-47	200-17
2/B	8-29	7-23	4,110-5	495-84	7,231-06	176-92	21-34	267-87
2/E	12	8-84	5,179	431-58	6,067-16	239-62	19-97	256-07
2/H	23-65	14-65	7,008-5	296-34	5,834-94	317-86	13-44	235-71
2/I	13-61	9-77	4,053	297-79	6,038-67	185-10	13-60	239-50
2/J	12	9-97	5,236-5	436-37	7,591-54	243-91	20-33	313-26
2/K	25	17-10	10,784-5	431-38	5,446-44	447-75	17-91	211-74
2/L	22	17	9,098-5	413-57	4,345-12	438-44	19-93	197-49
2/O	30	19-16	13,150	438-33	4,447-92	554-27	18-48	172-97
2/R	15	13-48	12,156-5	810-43	9,392-24	513-27	34-22	372-80
2/S	6	4	3,053-5	508-92	7,262-44	151-52	25-25	331-83
2/T	12	9-77	6,089	507-42	7,244-34	233-03	21-09	277-37
2/U	17	5-10	4,353	256-06	6,355-56	174-41	10-26	249-55
2/V	21	15	5,502-5	262-02	3,991-18	241-58	11-50	163-37
2/W	15-84	13-29	11,931	753-22	7,326-14	494-68	31-23	272-05
2/Y	11-94	7-90	5,146-5	431-03	6,937-08	227-95	19-09	281-88
2/BB	9	5-77	1,646	182-89	4,846-83	81-06	9-01	189-80
2/CC	13	8-32	2,555-5	196-57	4,231-38	116-78	8-98	183-14
Means	15-62	10-85	6,339-5	405-89	5,861-43	279-46	17-89	233-25

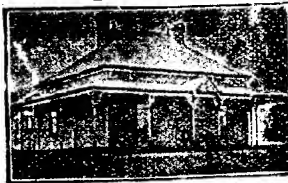
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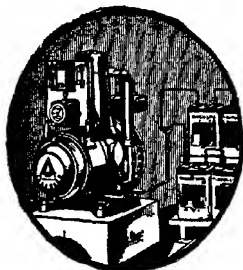
HEAD OFFICE: PARADE, NORWOOD.

GLENCOE HERD TESTING ASSOCIATION.

RESULTS OF BUTTERFAT TESTS FOR MAY, 1924.

Herd No.	Average No. of Cows in Herd.	Average No. of Cows in Milk.	Milk.			Butterfat.		
			Per Herd during May.	Per Cow during May.	Per Cow October to May.	Per Herd during May.	Per Cow during May.	Per Cow October to May.
			Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.
3/A	17	14-13	7,264	427-29	5,984-12	353-93	20-82	253-76
3/B	16	12-29	2,840	177-50	2,897-27	127-12	7-95	127-16
3/C	12	7-29	4,109-5	342-46	5,016-56	182-43	15-20	202-68
3/D	10-55	9-35	5,880-5	557-39	4,646-01	220-20	20-87	178-59
3/E	14	12-23	8,281	591-50	4,867-59	402-47	28-75	210-25
3/F	9	7-26	2,213-5	245-94	4,468-36	102-91	11-44	184-97
3/G	13	10-48	4,995-5	384-27	5,140-62	211-72	16-29	195-47
3/H	16	9-32	2,929	183-06	4,019-61	133-55	8-35	157-65
3/I	15	12-55	5,340	356-00	4,462-13	245-72	16-38	188-79
3/J	17	14	4,724-5	277-91	3,138-33	224-59	13-21	143-73
3/K	22	20-39	9,580	435-45	4,416-90	422-82	19-22	187-51
3/L	24	10-19	6,510	271-25	3,750-65	272-17	11-34	154-22
3/M	14-42	9-68	3,166	219-55	3,684-09	136-64	9-48	159-05
3/N	17-19	13	6,032-5	350-93	4,074-47	288-77	16-80	176-45
3/O	17	14-42	4,004-5	235-56	3,759-89	183-45	10-79	142-65
*3/P	15	13-26	4,397	293-13	2,715-77	203-12	13-54	106-33
3/Q	55	42-06	13,605-5	247-37	3,903-13	647-04	11-76	162-47
3/R	18	15-03	8,985-5	499-19	5,088-41	407-68	22-65	221-13
Means	17-90	13-72	5,825-47	325-49	4,207-56	264-80	14-80	175-50

* Herd 3/P has only been under test for five months.



DELCO-LIGHT

The complete Electric Light and Power Plant

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PURE BRED COWS WHICH COMPLETED OFFICIAL TESTS DURING YEAR JULY 1st. 1923.
TO JUNE 30th, 1924.

Herd Book No.	Name of Cow.	Breed.	Owner.	Total Milk.	Total Butter- fat.	Age at Date of Calving.	Common- wealth Butterfat Standard.
8256	Belle of Eden Valley	Jersey	Cowan, F. G.	5,541	313.60	4 0	300
10033	Grand Bid of Eden Valley	"	"	5,299	250.73	4 5	300
6610	Isobel of Cornelia	"	"	4,449	210.63	1 9	290
6625	Duchess 3rd of Dalebank	"	Cowan, L. T.	8,251	418.91	6 0	350
4760	Lucy of Dalebank	"	"	7,501	389.11	5 0	350
6824	Melford's Majesty	"	"	6,835	372.04	7 2	350
4256	Lady Grey of Dalebank	"	"	6,772	355.31	5 4	350
4256	Clematis	"	"	6,305	349.22	8 10	350
5201	Twitter	"	"	7,167	326.75	7 9	350
8914	Buttercup 2nd of Dalebank	"	"	6,884	320.35	4 1	300
6620	Firefly of Dalebank	"	"	6,210	308.25	4 10	325
8263	Lassie of Dalebank	"	"	6,109	302.23	3 11	275
8310	Dido of Dalebank	"	"	5,715	300.02	4 1	300
8259	Daisy 4th of Holmwood	"	"	5,413	294.52	2 11	225
9223	Daisy 4th of Holmwood	"	"	6,109	292.49	9 1	350
6652	Rhoda of Dalebank	"	"	5,385	278.67	5 2	350
4255	Bramble	"	"	6,181	273.66	10 4	350
10582	Rosette of Dalebank	"	"	4,998	272.44	1 11	200
10392	Fairy Queen 7th of Linden	"	"	4,554	268.38	1 10	200
4252	Dunallister Mannakin's Per- rees Capture	"	"	4,143	257.67	2 11	225
11317	Anemone	"	"	4,726	253.06	9 3	350
10580	Starlight of Dalebank	"	"	4,351	253.02	1 11	200
8313	Melody of Dalebank	"	"	4,525	243.31	1 11	200
10395	Duchess 5th of Glenelg	"	"	4,620	242.59	16 9	350
8260	Dunallister Mannakin's Per- rees Primrose	"	"	3,408	203.05	2 11	225
6669	Joan of Dalebank	"	"	3,941	193.71	3 4	275
4136	Kate of Stonyfell	"	Crompton, R. and T. E. Eckermann, W. F.	8,506	449.25	5 7	350
8919	Jessica's Maid of Meriden	"	"	8,578	438.61	7 10	350
10056	Princess Lotus of Elm	"	"	7,345	422.96	7 6	350
6743	Lindora of Meriden	"	"	6,113	408.36	3 9	275
8371	Lassie Grey of Linden	"	"	6,171	359.92	5 3	350
11396	Joan Kelly of Sunny Vale	"	"	6,805	358.82	5 6	350
10595	Carman of Pella	"	"	5,954	315.96	3 9	275
530	Thora of Meriden	"	"	5,320	293.16	2 10	225
754	Princess Audrey of Pella	"	"	4,222	264.44	1 4	200
647	Woodcrest Duchess Pietje	"	"	4,378	216.72	2 6	200
165	Arrowville Ruby Paxton	"	"	20,703	688.15	5 11	350
Vol. V.	Domino's Holland Belle	Friesian	Hannaford, F. E.	8,532	297.13	3 11	275
Longbeach	Johanna Pontiac	"	Hawker, W.	11,501	468.43	8 5	350
Daisy	Everlasting	"	"	11,268	412.28	4 11	325
8918	Rhodora 3rd of Penrhyn	Jersey	"	9,394	314.75	2 5	200
11528	Rosebud 7th of Penrhyn	"	Laughton, H.	7,800	397.00	9 11	350
8388	Christobel 4th of Penrhyn	"	"	7,119	392.41	2 6	225
11559	Lady Grey 9th of Penrhyn	"	"	6,075	243.36	6 4	350
11547	Christobel 6th of Penrhyn	"	"	6,147	337.51	3 8	275
11557	Rosebud 5th of Penrhyn	"	"	5,791	327.70	3 10	275
4233	†Christobel 3rd	"	"	5,338	301.63	4 7	325
8345	Kate 2nd of Stonyfell	"	"	5,780	295.07	9 6	350
6621	May 18th of Linden	"	Malthouse, J.	6,424	376.46	3 7	275
10728	Swallow 4th of Oakdale	"	Muirhead & Butler	6,096	355.29	4 7	325
6151	Beauty's Helress of Wangara	M.S.	"	9,457	354.29	5 11	350
10397	Rhonda of Meriden	"	"	8,046	299.04	10 3	350
10655	Eulora of Meriden	Jersey	McAuliffe Bros.	6,581	346.98	3 5	250
4786	Lobelia of Springhurst	"	"	4,985	289.95	3 3	250
7210	Doris of Klamia	"	Neumann, R. G.	7,014	403.67	8 11	350
Vol. XI.	Janet's Bright Lass of Grantala	"	"	5,811	323.84	6 0	350
11656	Carnation of Oakhill	"	"	5,431	264.34	1 11	210
8417	Mayflower of Grantala	"	"	3,500	206.06	1 9	200
8116	Olivia of Grantala	"	Pitzner, J. A. J.	6,206	247.51	3 5	250
8023	Maggie of Grantala	"	"	5,944	335.44	2 10	225
7263	Jane of Kooral	"	"	3,299	302.59	5 8	350
4554	Nellie's Guller of Linden	"	"	4,914	278.91	4 10	325
6311	Viola 8th of King's Vale	"	"	4,029	235.50	8 4	350
4762	Queen of Sheba	"	"	4,827	229.30	3 5	250
9510	Thora 9th of Banyule	"	Symon, O. S.	7,047	113.53	3 8	250
10577	Ivia of Dalebank	"	"	6,768	376.36	3 1	250
10578	Mabel of Dalebank	"	"	6,745	331.46	3 1	250
11475	Rarity 14th of Melrose	"	"	4,577	281.49	2 11	225
6237	Retford Promise	"	"	4,104	245.05	2 4	200
10588	Retford Sybil	"	"	4,455	239.57	2 6	230
12059	Retford Vernonia	"	"	4,621	225.82	5 3	250
12059	Jessamine of Meriden	"	Traeger, E. O.	3,894	227.96	3 0	200
12059	Lobelia of Sunny Vale	"	"	3,430	205.61	1 9	200

* Tested for 233 days only.

† Tested for 201 days only.

‡ Tested for 240 days only.

ADVISORY BOARD OF AGRICULTURE.

The monthly meeting of the Advisory Board of Agriculture was held on Wednesday, June 11th, there being present Mr. W. S. Kelly (Chairman), Capt. S. A. White (Vice-Chairman), Col. Rowell, Messrs. W. J. Colebatch, B.Sc., M.R.C.V.S., A. M. Dawkins, F. Coleman, J. W. Sandford, A. B. Feuerheerdt, L. Cowan, B.Sc. (Agric.), H. Wicks, G. Jeffrey, C. J. Tuckwell, and the Secretary (Mr. H. J. Finnis).

Apologies were received from Professor A. J. Perkins, the President of the Royal Agricultural & Horticultural Society, Messrs. A. Julius, P. H. Jones, and H. S. Taylor.

Alteration of Date of Michaelmas School Holidays.—The Chairman (Mr. W. S. Kelly) reported that he had interviewed the Director of Education in connection with the resolution carried at the last Congress—"That the Education Department be asked to alter the date of the Michaelmas holidays to synchronise with Show Week, so that country children might have the opportunity of attending the Show"—and that the Director had informed him that consideration was being given to the necessity for synchronising high school and college holidays with those of the country schools. It was pointed out by the Chairman that the Show was held during the high school holidays, and if the suggestion of the Director of Education were brought into force, the desires of the Board would be met.

Destruction of Foxes.—The Conference of Mid-Northern Branches resolved, "That the Advisory Board of Agriculture be asked to urge on the Government the necessity for bringing in legislation to provide for the simultaneous destruction of foxes on lines similar to those adopted in connection with the destruction of rabbits." The matter was referred to the Minister of Agriculture, who did not approve of the suggestion. On the motion of Mr. W. J. Colebatch, seconded by Mr. A. M. Dawkins, it was decided that the resolution should be brought before the Congress Committee for consideration at the 1924 Congress.

Afforestation on the River Murray.—At the March, 1924, meeting of the Board it was decided that the Irrigation Commission should be approached with reference to timber growing along the River Murray. A communication was received from that body, intimating that it would welcome suggestions from the Advisory Board relating to the conservation of timber on those areas. It was decided that Mr. Taylor should be asked to introduce the subject for further discussion at the next meeting of the Board.

Crop Competitions.—The Secretary reported that the Minister of Agriculture had approved of the determination of six (6) crop competition districts.

Utilisation of Waste Water at Tantanoola.—In connection with the suggestion of the Tantanoola Branch that an expert should be sent to the district to report on the feasibility of utilising the water running to waste in drains, the Secretary read a lengthy report on the matter from the Manager of the Kybybolite Farm (Mr. L. J. Cook). On the motion of Mr. W. J. Colebatch, seconded by Mr.



THERE is a certain inherent satisfaction and comfort in climbing a hill in a Hupmobile. It goes steadily, surely upward, gaining in momentum without laboring or straining. Other cars may perform as well as the Hupmobile on the straightaway, but when it comes to hills and rough going under hard conditions, a Hupmobile will exceed your expectations.

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A. B. Feuerheerdt, the Board decided to ask the Director of Agriculture for a report on the feasibility of establishing an experimental area in the Tantanoola district on the basis of Mr. Cook's report.

Distribution of Trees.—A communication was received from the Minister stating that after the present planting season, free distribution of trees would be discontinued, and a limited supply of pines and eucalypts would be raised for sale to the public at a price to be arranged later.

Washed Super Bags for Marketing Potatoes.—The South-Eastern Conference also resolved, "That it be permissible to use good, sound, thoroughly washed super bags for marketing potatoes." The Chairman of the Central Board of Health (Dr. W. Ramsay Smith) on being asked to express an opinion on the subject, said, "Regulation 10, Protection of Food from Contamination, paragraph 16 of the Food and Drugs Regulations, 1915, reads:—'No person shall enclose or carry or store wheat, oats, maize, potatoes, onions, fruit, or any other article of food for sale in any bag or sack or similar receptacle which has at any time contained, or has been used for the conveyance of bone dust or superphosphate, or any other manure or mixture of manures.'"

Planting Trees on Roadsides.—Correspondence on this subject was referred to Mr. Coleman, who undertook to deal with the question at the next meeting of the Board.

Tod River Water Scheme.—Smoky Bay Branch of the Agricultural Bureau sought information with respect to the Tod River Water Supply. The Board decided to forward their communication to the Public Works Department.

Stock Diseases Act.—At the Conference of Branches of the Agricultural Bureau on Kangaroo Island, held during June, it was resolved, "That the Stock Department take steps to enforce the provisions of the Stock Diseases Act on Kangaroo Island." It was decided to ask the Chief Inspector of Stock for a report on the subject.

Cable Advices on Barley.—The Kangaroo Island Conference also resolved, "That the Government be asked to secure from London, during the months of December, January and February, weekly cable advices of barley prices." It was decided to ask the Minister to instruct the Produce Department to obtain information from the Trade Commissioner in London on the lines set out in the resolution.

Red Wheats.—A communication was received from the Adelaide Corn & Produce Exchange relating to a proposed dockage on red wheats, and the Secretary was instructed to publish again in the *Journal* a list of red wheats, and the varieties of white wheats that could be substituted for the first named.

Coast Disease of Sheep on Kangaroo Island.—The Secretary of the Board, who attended the Conference of Branches of the Agricultural Bureau on Kangaroo Island, stated that very serious trouble was said to have been experienced on Kangaroo Island from what was generally known as "Coast Disease." On the motion of Mr. G. Jeffrey, seconded by Mr. J. W. Sandford, a committee consisting of Messrs. W. S. Kelly, W. J. Colebatch, and the Chief Inspector of Stock (Mr. C. A. Loxton) was appointed to report to the Board on the question of the advisability of establishing a research institute for sheep diseases.

Life Membership.—The name of Mr. J. J. Deer was added to the list of life members.

New Members.—The following names were added to the rolls of existing Branches:—Glossop—A. Howse, A. H. Penney; Narrung—A. G. Thornley, W. C. F. Adcock, W. G. Morley, G. Hornabrook; Brinkworth—H. Snow, H. J. Allen, E. J. Heinrich, George Walladge, J. A. Ottens, H. E. Ottens, E. H. Ottens, A. H. Hoepner, A. O. Waldbuter, M. O. Lindblom, H. N. Cornish, A. N. Grigg, F. J. Pedler, J. P. Jarman, J. Stott; Streaky Bay—C. Thom; Rudall—C. E. Thompson, C. M. Smith, H. R. Roberts; Tatiara—F. Scown; Pinnaroo—A. T. Hawthorn, H. Tiller, F. S. Jones, E. J. Pollard; Mundalla—Charles Hyde; Talia—W. A. Silvy; Taplan—B. Teakle; Stockport—G. Cant, L. C. Cant; Blackwood—Goldsack; New Residence—B. Freundt, W. Eckermann, E. Eckermann, A. Vickory; Strathalbyn—J. H. Heading, W. H. Roper, H. T. Stacey, A. E. Stacey, P. H. Stacey; Gulnare—W. Burgess, P. G. Thomas, F. Brook, L. G. Smart, C. Smart, F. Belcher, G. Hill, G. K. Davidson; Laura—E. Rohrlach, E. Lynch; Mount Pleasant—D. Learmouth; Lipson—H. W. Nankivell; Lenswood and Forest Range—J. H. Schulz, W. Hamilton, C. Newman, E. Mason; Brentwood—N. Webb, S. Long; Shoal Bay—G. A. Turner; Berri—T. E. Inglis; Petina—J. Green, W. R. Baldock, W. Baldock; Goode—G. D. Klou, B. O. Klou; Iron Bank—C. Coats; Rapid Bay—J. T. Lord; Kybybolite—J. Pettit; Collie—H. Binns, E. Wheaton; Wirrabara—F. Tregenza; Taplan—B. Teacle.

ORCHARD NOTES FOR SOUTHERN DISTRICTS.

[By C. H. BEAUMONT, Orchard Instructor and Inspector.]

If you have not completed planting, do so as soon as possible; but do not go on with the work if the soil gets very wet. The soil must be friable if the planting is to be successful.

Pruning will be continued and will be the main work this month. I would again warn growers not to overdo it; if in doubt, *don't*. Put cuttings together as soon as each tree is finished, so as to be easily picked for the cart or the burner. Pruning of vines will, of course, be pushed on; give the weaker vines less to do, so as to allow them to gain in vigor; clear the cuttings as soon as possible and burn them.

Get on with the ploughing; vary the depth from last year, to prevent hard pan. Disc implements should be more used in our orchards and vineyards. See that all waterways are free always.

Later on spray pumps and swabs will be wanted; have them ready. Also the materials for spraying, lime-sulphur, sulphuric acid, red oil, and bluestone.

On wet days clean up the drying apparatus, trays, cases, &c.

Examine the fruit in cool store and remove any that is damaged.

Work up strawberry and raspberry beds.

THE AGRICULTURAL OUTLOOK.

REPORTS FOR THE MONTH OF JUNE.

The following reports on the general agricultural condition and outlook of the areas represented by the Government Experimental Farms mentioned below have been prepared by the respective managers:—

Booborowie.—Weather—The weather for June has been extremely cold, and fairly wet. Three hundred and forty points of rain, which is 84 points above the average, have been registered. The total rain since the 1st of January to the 27th of June is 1085 points, which must be considered satisfactory. Crops—The crops have all germinated nicely so far, and there is a considerable amount sown that has not yet come through. Natural feed is plentiful for this time of the year. Stock—All livestock are in good condition and healthy. Pests.—Rabbits are fairly numerous, but most landholders are destroying them. Miscellaneous—Farmers have nearly finished seeding.

Kybybo'ite.—Weather has been cold, some very heavy frosts being experienced intermittently with the severe cold, showery conditions. Some good rains were recorded—2½ in. in all for the month—which is ½ in. less than the average for June. The total of over 10 in. for the half-year to date is ½ in. above the average. Crops have all been sown comparatively early, and only small areas were sown this month. All have germinated splendidly, and made excellent initial growth. Comparatively large areas have been sown down to subterranean clover, and this seed has practically all germinated well. Also Wimmera rye grass has made a good start. Maize grown for grain ripened early in the month, and has been successfully harvested. Berseem sown at the end of February made good growth, and has given its first cut of greenfeed during the latter end of this month. Natural feed has made good growth, although checked somewhat by frosts. However, where good top dressings of phosphate have been given, the grass has not been much affected. Stock are in good condition; lambs generally are very healthy and strong, and the growth of wool up to date has been splendid.

Turretfield.—Weather—Nice rains fell during the month, but they delayed seeding, which is late in this district. A total of 256 points was registered. Many severe frosts were experienced. Crops—The early-sown crops are looking well, although checked by the frosts. Rain has set the land wherever it is red or clayey, and the wheat is not coming through in these places. There is little feed in the district. Stock—A fair number of lambs have been tailed by those who keep sheep, but many farmers in this district do not have a flock. Pests—Lucerne flea is again showing up. Miscellaneous—Stinkwort and hogweed are making ploughing difficult. Pruning has started in the vineyards.

DAIRY AND FARM PRODUCE MARKETS.

A. W. Sandford & Co., Limited, reported on July 1st, 1924:—

BUTTER.—Since our last report, values have fluctuated owing to the influence of the London market, and also the shrinking in supplies of top grades in Victoria, from which State fairly heavy parcels have been brought to fill the trade's requirements. The latest London reports advise that the market is firm, and it suggests that good prices will be obtainable when surplus butters are being placed in cold stores for overseas shipments. Excellent local demand has ruled during the month, values now being:—Choice factory and creamery fresh butter in bulk, 1s. 6½d.; first grade bulk, 1s. 4½d.; second and third grade, 1s. 2½d. to 1s. 3d.; best separators and dairies, 1s. 4½d. to 1s. 6d.; fair quality, 1s. 3½d. to 1s. 4d.; store and collectors', 1s. 1½d. to 1s. 3½d. per lb.

EGGS.—As is expected at this time of the year, consignments came forward in erratic quantities, and the market recorded several fluctuations in prices. However, towards the close of last month, values again improved. Fresh hen, 1s. 9½d.; duck, 1s. 10½d. per dozen.

CHEESE.—Although fairly heavy forwardings came to hand from the South-Eastern factories weekly, the excellent sales put through with local buyers, and the fair demand from Western Australia have kept stocks of new makes cleared at the range of 9d. to 10½d. per lb. for large to loaf. Buyers are only operating on a small scale, however, with semi-matured and matured lines at about 10½d. per lb. for large size.

HONEY.—The consistent demand from the Eastern States and local purchasers resulted in the market firming for the best qualities. Lower grades have also been in good request. Prime clear extracted in liquid condition, 5½d. to 5¾d.; best quality candied lots, 5d. to 5½d.; lower grades, 4d.; beeswax readily saleable at 1s. 4d. to 1s. 4½d. per lb.

ALMONDS.—The local demand is about equal to the quantities coming forward, with the market slightly firmer:—Brandis, realising 8d.; mixed softshells, 7d.; hardshells, 3½d. to 4d.; kernels, short of requirements, at 1s. 7½d. to 1s. 8d. per lb.

BACON.—For some weeks past, most active demand has ruled for all lines of bacon, and although the local supplies have been ample for this State's requirements, several shipments from Victoria have been handled on this market. Best factory cured sides, 1s. 3d.; best factory cured middles, 1s. 7d.; best factory cured rolls, 1s. 3d. Hutton's "Pineapple" brand hams, 1s. 8d. to 1s. 9d. Hutton's "Pineapple" brand middles, 1s. 7d. per lb.; lard, Hutton's "Pineapple" lard in packets, 11d., in bulk, 10d. per lb.

LIVE POULTRY.—At each sale we yarded a large number of birds, which were submitted to a representative gathering of the trade, and where consignments consisted of prime quality birds, high prices were secured. However, with pens of poor condition lower prices had to be accepted to effect clearances. Buyers have only small stocks on hand apparently, and are anxious to purchase all killable birds. We, therefore, advise consigning at earliest. Rates obtainable on application. The following rates ruled at to-day's auction:—Prime roosters, 4s. 6d. to 5s. 9d. each; nice conditioned cockerels, 2s. 6d. to 4s.; poor conditioned cockerels, 2s. to 2s. 3d.; plump hens, 3s. to 4s. 6d.; medium hens, 2s. 2d. to 2s. 9d.; some pens of weedy sorts lower; geese, 6s. 6d. to 8s.; ducks, good condition, 4s. to 6s. 3d.; ducks, fair condition, 2s. 6d. to 3s. 6d.; turkeys, good to prime condition, 11½d. to 1s. 2d. per lb. live weight; turkeys, fair condition, 9d. to 11d. per lb. live weight; turkeys, fattening sorts, lower; pigeons, 11½d. each.

POTATOES.—Prime new potatoes at 7s. 6d. to 8s. 6d. per cwt. on rail, Mile End.

ONIONS.—Best brown onions at 15s. per cwt. on rail.

IMPORTS AND EXPORTS OF FRUITS, PLANTS, ETC., MAY, 1924.

IMPORTS.

Interstate.

Apples (bushels)	248
Bananas (bushels)	8,973
Oranges (bushels)	2
Passion fruit (bushels)	342
Pineapples (bushels)	179
Cabbages (packages)	15
Cauliflowers (packages)	33
Potatoes (bags)	24,416
Onions (bags)	773
Bulbs (packages)	24
Plants (packages)	43
Seeds (packages)	68
Trees (packages)	3
Wine casks, empty (number)	2,607
Fumigated—24 wine casks.	
Rejected—386 bags potatoes and 1 second-hand case.	

Overseas.

Federal Quarantine Act.

Seeds, &c. (packages)	4,119
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EXPORTS.

Federal Commerce Act.

50,791 packages other fresh fruit, 305 packages citrus fruit, 85,917 packages dried fruit, 20 packages preserved fruit, and one package seeds were exported to overseas markets. These were consigned as follows:—

London.

Apples	49,071
Pears	136
Seeds	1
Dried fruit	78,134

India and East.

Dried fruit	150
Apples	1,214
Grapes	20

Africa.

Dried fruit	3,410
Apples	350

New Zealand.

Dried fruit	2,223
Chutney	20
Citrus fruit	305

United States of America.

Dried fruit	2,000
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RAINFALL TABLE.

The following figures, from data supplied by the Commonwealth Meteorological Department, show the rainfall at the subjoined stations for the month of and to the end of June, 1924, also the average precipitation to the end of June, and the average annual rainfall.

Station.	For June, 1924.	To end June, 1924.	Av'ge To end June.	Av'ge. Annual Rainfall	Station.	For June, 1924.	To end June, 1924.	Av'ge To end June.	Av'ge. Annual Rainfall
FAR NORTH AND UPPER NORTH.					LOWER NORTH—continued.				
Oodnadatta	—	1.43	3.09	4.94	Spalding	3.27	9.09	8.50	20.27
Maree	0.01	1.27	3.28	6.07	Guinane	3.76	12.05	8.28	19.36
Farina	0.09	1.31	3.79	6.66	Yacka	2.49	9.81	6.95	15.48
Copley	0.09	1.35	4.72	8.39	Koolunga	2.51	8.75	7.23	15.89
Beltana	0.36	1.09	4.89	8.97	Snowtown	2.48	8.59	7.42	16.07
Blinman	0.59	1.92	5.59	12.53	Brinkworth	2.57	8.63	7.22	16.30
Tarcoola	0.48	2.62	3.78	7.74	Blyth	2.62	10.25	7.87	17.03
Hookina	0.95	2.39	6.63	13.46	Clare	4.46	14.52	10.09	24.68
Hawker	1.46	2.92	6.30	12.92	Mintaro	4.14	12.01	10.26	23.57
Wilson	1.28	3.17	6.18	12.58	Watervale	4.79	14.38	12.39	27.54
Gordon	1.06	3.19	5.70	11.55	Auburn	3.63	10.21	10.97	24.35
Quorn	1.11	3.56	6.60	14.21	Hoyleton	2.47	8.34	8.04	17.91
Port Augusta	0.70	4.10	4.96	9.67	Balaklava	1.88	7.38	7.58	15.95
Port Augusta West	0.67	3.71	4.84	9.71	Port Wakefield	1.52	7.51	6.75	13.28
Bruce	0.68	3.01	5.13	10.77	Terowie	1.66	5.24	6.12	13.82
Hammond	0.93	3.85	5.74	11.91	Yarcowie	1.68	5.23	6.49	14.22
Wilmington	1.74	6.73	8.54	18.29	Hallett	2.83	9.25	7.07	10.49
Willowie	1.20	4.71	6.18	12.57	Mount Bryan	3.17	10.34	7.16	16.81
Melrose	2.64	9.31	11.03	23.40	Koorunga	2.70	9.12	8.09	18.09
Booleeroo Centre	1.58	6.48	7.28	15.65	Farrell's Flat	2.51	8.95	8.51	19.00
Port Germein	1.16	6.25	6.29	12.89	WEST OF MURRAY RANGE.				
Wirrabara	2.17	8.23	8.54	19.78	Manoora	3.15	9.44	8.28	18.93
Appila	1.52	8.25	6.64	15.00	Saddleworth	3.01	9.05	9.07	19.78
Craddock	1.24	2.72	4.66	11.52	Marrabel	3.76	10.14	8.87	19.78
Carrieton	0.79	2.80	6.03	12.90	Riverton	3.87	10.80	9.54	20.79
Johnburg	0.59	2.99	5.11	10.91	Turlee	2.86	9.69	8.27	17.93
Eurelia	1.15	3.48	6.34	13.54	Stockport	2.65	9.14	7.61	16.63
Orroroo	1.17	3.76	6.63	13.73	Hamley Bridge	2.28	9.83	7.81	16.59
Nackara	1.02	3.82	6.13	11.99	Kapunda	3.13	10.77	9.06	19.89
Black Rock	1.25	4.12	6.13	12.75	Freeling	2.62	8.50	8.25	17.99
Coonla	0.67	2.56	5.64	12.04	Greenock	3.59	10.69	9.69	21.68
Peterborough	2.37	5.93	6.32	13.53	Truro	3.95	11.08	9.09	20.20
Yongala	2.04	6.56	6.54	14.58	Stockwell	3.70	11.03	9.15	20.32
LOWER NORTH-EAST.					Nuriootpa	2.60	8.42	9.49	21.00
Yunta	0.47	1.59	4.60	8.88	Angaston	3.94	10.98	10.18	22.53
Waukaringa	0.60	2.42	4.40	8.54	Tanunda	4.09	10.70	10.29	22.24
Mannahill	0.48	1.59	4.45	8.67	Lyndoch	4.97	12.73	10.43	22.93
Cockburn	0.38	2.20	4.36	8.31	Williamstown	4.89	12.13	12.75	27.48
Broken Hill, N.S.W.	0.38	1.81	5.17	9.98	ADELAIDE PLAINS.				
LOWER NORTH.					Mallala	2.26	9.76	7.98	16.72
Port Pirie	1.42	6.85	6.67	13.55	Roseworthy	3.01	9.56	8.12	17.35
Port Broughton	2.83	8.28	6.95	14.29	Gawler	3.56	11.23	9.04	19.11
Bute	2.28	8.21	7.38	15.78	Two Wells	3.18	10.49	7.78	18.88
Laura	2.03	8.13	8.29	18.26	Virginia	3.17	9.86	8.26	17.32
Caltowie	2.38	8.04	7.81	17.20	Smithfield	3.02	10.53	8.21	17.24
Jamestown	3.32	10.08	7.73	17.89	Salisbury	3.16	10.54	8.99	18.51
Bundaleer W. Wks.	3.10	11.10	7.48	18.09	North Adelaide	4.32	15.85	10.59	22.37
Gladstone	3.21	10.77	7.26	18.29	Adelaide	3.70	12.99	10.08	21.08
Crystal Brook	2.87	10.45	7.38	15.95	Glencelg	3.46	10.61	9.02	18.45
Georgetown	4.15	11.75	8.47	18.55	Brighton	3.42	10.91	10.31	21.37
Naridy	2.96	8.16	7.64	16.37	Mitcham	4.38	14.12	11.60	24.26
Redhill	2.76	8.19	8.01	16.94	Glen Osmond	5.20	14.72	12.44	25.94
					Magill	5.27	17.45	11.34	25.35

RAINFALL—continued.

Station.	For June, 1924.	To end June, 1924.	Av'ge To end June.	Av'ge Annual Rainfall	Station.	For June, 1924.	To end June, 1924.	Av'ge To end June.	Av'ge Annual Rainfall
MOUNT LOFTY RANGES.					WEST OF SPENCER'S GULF—continued.				
Teatree Gully.....	4.68	16.71	13.47	27.77	Tumby	1.88	4.81	6.10	14.58
Stirling West	7.76	24.58	20.27	46.82	Carrow	1.45	4.03	6.12	14.42
Uraidla	8.04	24.07	20.98	44.23	Arno Bay	1.27	4.22	5.89	13.06
Clarendon	5.26	15.97	15.69	33.09	Cowell	0.78	3.47	5.77	11.63
Morphett Vale	3.37	13.54	10.95	22.90	Minnipa	2.05	5.50	7.31	15.51
Noarlunga	3.16	13.48	9.75	20.41	Ungarra	2.37	5.91		
Willunga	3.28	14.44	12.23	25.99	Darke's Peak	2.39	5.88		
Aldinga	2.73	11.59	9.84	20.44	Kimba	1.32	3.95		
Myponga	4.04	14.73	13.97	29.80					
Normanville	3.30	12.70	9.93	30.70	YORKE PENINSULA.				
Yankalilla	3.19	12.52	11.53	23.31	Wallaroo	2.12	7.80	7.23	14.12
Mount Pleasant ..	3.98	11.58	12.35	27.28	Kadina	2.21	8.46	7.88	16.02
Birdwood	4.65	12.64	13.32	29.39	Moonta	2.51	9.26	7.76	15.35
Gumeracha	5.69	17.47	15.32	33.36	Green's Plains	2.13	7.90	7.53	15.86
Millbrook Reservoir	6.18	19.36	16.91	36.21	Maitland	3.83	13.13	9.67	29.17
Tweedvale	7.26	19.74	16.13	35.65	Ardrossan	1.57	6.51	6.84	14.18
Woodside	5.59	16.59	14.37	32.20	Port Victoria	2.73	9.14	7.59	15.50
Ambleside	5.96	17.90	15.56	34.82	Curramulka	3.04	9.26	8.12	18.20
Nairne	4.41	14.52	13.23	28.44	Minlaton	2.87	9.21	8.48	17.90
Mount Barker	5.50	15.50	14.02	31.30	Brentwood	2.44	8.10	7.39	15.83
Echunga	5.46	16.96	15.52	33.06	Stansbury	3.04	9.08	7.94	17.01
Macclesfield	4.72	14.39	14.67	30.65	Warooka	2.51	7.83	8.24	17.80
Meadows	5.26	19.86	16.47	36.19	Yorke town	1.73	7.50	8.01	17.24
Strathalbyn	2.46	10.26	8.82	19.37	Edithburgh	1.46	7.22	8.91	16.58
MURRAY FLATS AND VALLEY.					SOUTH AND SOUTH-EAST.				
Menangle	2.57	11.48	8.92	18.74	Cape Borda	3.88	11.72	12.02	25.08
Milang	1.45	7.52	7.36	15.45	Kingscote	1.61	6.54	8.85	19.04
Langhorne's Creek ..	2.06	8.69	6.72	14.77	Penneshaw	1.68	6.87	8.88	19.47
Wellington	2.26	9.20	6.76	14.80	Victor Harbor	2.11	8.92	10.03	21.49
Taillem Bend	2.54	9.78	6.77	14.68	Port Elliot	2.33	9.31	9.40	20.12
Murray Bridge	1.84	7.69	6.57	13.94	Goolwa	1.90	7.72	8.40	17.89
Callington	2.17	7.89	7.13	15.49	Mindarie	1.69	6.32	—	—
Mannum	1.28	5.88	5.70	11.66	Alawoona	1.60	6.29	—	—
Palmer	1.63	5.45	6.75	15.46	Karoonda	2.02	7.88	—	—
Sedan	1.95	5.77	5.84	12.27	Sandalwood	2.11	6.67	—	—
Swan Reach	1.16	5.10	5.15	11.06	Meribah	1.62	6.17	—	—
Blanchetown	0.67	3.90	4.94	10.09	Pinnaroo	2.32	7.18	7.13	15.59
Eudunda	2.32	6.47	7.87	17.51	Parilla	2.21	6.77	6.47	14.51
Sutherlands	1.33	4.55	5.03	11.20	Lameroo	3.35	10.12	7.16	16.82
Morgan	1.00	4.17	4.28	9.30	Farrakie	2.12	7.76	6.29	14.38
Waikerie	1.02	4.92	4.83	9.87	Geranium	2.19	8.96	7.13	16.62
Overland Corner	1.00	3.80	5.25	11.03	Peake	2.53	11.07	7.45	16.73
Loxton	1.52	5.21	5.91	12.50	Cooke's Plains	2.88	11.28	6.85	15.14
Renmark	1.16	4.20	5.09	11.06	Coomandook	2.85	11.15	7.76	17.49
Monash	1.36	4.79	—	—	Coonalpyn	3.18	12.22	7.74	17.49
WEST OF SPENCER'S GULF.					Tintinara	1.99	10.45	8.27	18.70
Eucla	0.81	2.44	5.47	10.01	Keith	1.85	9.73	8.02	18.22
White Well	1.17	3.90	4.41	9.20	Bordertown	2.14	10.22	8.59	19.39
Fowler's Bay	1.71	4.83	6.27	12.14	Wolsley	2.41	10.17	7.97	18.12
Penong	2.21	7.19	6.26	12.53	Frances	2.61	10.18	8.45	19.73
Ceduna	1.60	4.43	3.81	10.25	Naracoorte	2.80	11.70	10.00	22.25
Smoky Bay	1.90	4.54	5.24	10.98	Penola	2.40	11.15	11.01	22.25
Petina	1.77	4.89	5.92	12.95	Lucindale	3.41	13.69	10.21	23.00
Streaky Bay	1.87	5.85	7.42	18.07	Kingston	3.17	12.81	11.43	21.51
Talia	2.74	6.41	6.54	15.32	Robe	2.59	10.77	11.46	24.68
Port Elliston	1.99	7.43	7.87	16.56	Beachport	3.03	10.51	12.88	27.20
Cummins	2.47	5.21	7.87	18.56	Millicent	3.77	15.00	13.70	29.39
Port Lincoln	2.41	7.17	9.11	19.66	Kalangadoo	3.14	15.97	13.69	32.47
					Mount Gambier ..	2.65	12.92	13.78	31.29

AGRICULTURAL BUREAU REPORTS.

INDEX TO CURRENT ISSUE AND DATES OF MEETINGS.

Branch.	Report on Page	Dates of Meetings		Branch.	Report on Page	Dates of Meetings.	
		July.	Aug.			July.	Aug.
Alawoona	•	—	—	Geranium	•	26	30
Aldinga	•	16	13	Gladstone	1182-3	11	15
Allandale East	1220	18	15	Glencoe	•	17	14
Amyton	•	14	18	Glossop	1209	16	13
Angaston	•	—	—	Goode	•	16	13
Appila-Yarrowie	•	—	—	Green Patch	1204	14	11
Arthurs	1197	—	—	Guinare	1186	16	13
Ashbourne	•	—	—	Gumeracha	•	14	18
Balaklava	•	12	9	Halidon	•	—	—
Balhamnah	•	4, 25	22	Hartley	1217	—	—
Baramba	A.M.	14	11	Hawker	•	15	12
Beetaloo Valley	•	—	—	Hilltown	•	—	—
Belalie North	•	12	9	Hookina	1181-2	10	14
Berri	•	16	13	Inman Valley	•	—	—
Bethel	1186	—	—	Ironbank	1217	12	9
Big Swamp	1204	—	—	Kadina	•	—	—
Blackheath	1217	18	15	Kalangadoo (Women's)	1220	12	9
Black Springs	•	15	12	Kalangadoo	1220	12	9
Blackwood	•	21	18	Kangarilla	1210	—	—
Block E	•	—	—	Kanmantoo	•	12	9
Blyth	•	5	2	Keith	•	—	—
Booleroo Centre	†	11	15	Ki Ki	•	—	—
Borrika	•	—	—	Kilkerran	1196	15	12
Brentwood	1194	10	14	Kimba	•	—	—
Brinkley	1205	12	9	Kingston-on-Murray	•	—	—
Brinkworth	1186	—	—	Kongorong	1218	10	14
Bundaleer Springs	•	—	—	Koonibba	•	11	15
Bute	•	15	12	Koppio	1198	14	11
Butler	1198	—	—	Kringin	1206-9	12	9
Calca	•	—	—	Kybybolite	•	10	14
Cadell	•	—	—	Lake Wangary	•	12	9
Canowie Belt	•	—	—	Lameroo	1206	18	15
Carrow	•	16	13	Laura	†	19	16
Cherry Gardens	†	15	12	Lenswood and Forest Range	•	—	—
Clanfield	•	—	—	Light's Pass	1194	—	—
Clare	†	—	—	Lipson	1198, 1200	—	—
Clarendon	1217	14	—	Lone Gum and Monash	1209	16	13
Claypan Bore	†	16	13	Lone Pine	•	—	—
Cleve	•	16	13	Longwood	1210	—	—
Collie	1204	—	—	Loxton	•	—	—
Colton	•	25	29	Lucindale	•	—	—
Coomandook	•	16	13	Lyndoch	1194	10	—
Coonalpyn	1206	18	15	McLachlan	1205	—	—
Cradook	•	—	—	McLaren Flat	1211-3	—	—
Crystal Brook	•	12	9	MacGillivray	†	15	12
Cungena	•	—	—	Maitland	•	10	14
Currency Creek	1209	18	15	Mallala	•	21	18
Cygnnet River	•	10	14	Maltee	•	11	15
Darke's Peak	•	—	—	Mangalo	•	—	—
Denial Bay	•	—	—	Mannanarie	1184	10	14
Edillilie	•	26	30	Marama	†	—	—
Elbow Hill	•	22	19	Meadows	•	16	13
Eurelia	•	12	9	Meningie	•	—	—
Farrell's Flat	•	11	15	Milang	•	12	9
Frances	1217	26	30	Millicent	•	12	—
Gawler River	•	14	18	Miltalie	1200	12	—
Georgetown	•	12	9				

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Branch.	Report on Page	Dates of Meetings.		Branch.	Report on Page	Dates of Meetings.	
		July.	Aug.			July.	Aug.
Mindarie	•	7	4	Roberts and Verran ..	1201	10	14
Minlaton	•	11	15	Rockwood	†	14	16
Minnipa	•	16	13	Rosedale	1194	16	—
Monarto South	1206	—	—	Rosy Pine	•	—	—
Moonta	1197	11	15	Rudall	•	10	14
Moorak	•	10	14	Saddleworth	•	—	—
Moorlands	•	—	—	Saddleworth	•	8	12
Moorook	1209	14	18	(Women's)	•	—	—
Morehard	1181	12	9	Salisbury	•	1	5
Morphett Vale	•	17	14	Salt Creek	•	—	—
Mount Barker	•	16	13	Sandalwood	A.M.	—	—
Mount Bryan	•	—	—	Shoal Bay	1214	—	—
Mount Bryan East ..	•	—	—	Smoky Bay	1205	—	—
Mount Compass	•	—	—	Spalding	•	—	—
Mount Gambier	1218	12	9	Stockport	1190-4	18	15
Mount Hope	1200	12	9	Streaky Bay	•	—	—
Mount Pleasant	1214	—	—	Strathalbyn	•	15	12
Mount Remarkable ..	•	—	—	Talia	1202	12	9
Mount Schank	•	15	12	Tantanoola	1220	12	9
Mundalla	•	16	13	Tapian	1209	15	12
Murray Bridge	1208	22	12	Tarcowie	†	15	12
Myponga	1209	16	13	Tarlee	1190-2	14	—
Myponga	•	—	—	Tatilara	†	19	16
Myria	†	12	9	Tweedvale	1214-7	17	14
Nantawarra	1186	10	14	Two Wells	•	—	—
Naracoorte	1220	12	9	Uraidla & Summertown	1216	7	4
Narriby	•	19	16	Veitch	•	—	—
Narrung	•	19	16	Virginia	•	—	—
Nesta	•	—	—	Walkerie	•	—	—
Nelshaby	1185	12	9	Wall	•	—	—
Netherton	1209	11	15	Wanbi	•	—	—
New Residence	1205	—	—	Warcoowie	•	15	12
North Booborowie ..	•	15	—	Watervale	•	—	—
North Bundaleer	•	—	—	Weavers	1197	14	11
Northfield	•	—	—	Wepowie	1181	15	12
Nunkeri and Yurgo ..	•	6	3	Whyte-Yarcoowie	•	—	—
O'Loughlin	•	16	13	Wilkawatt	•	12	9
Orroroo	1182	19	—	Williamstown	1193-4	2	6
Owen	1188-9	11	15	(Women's)	•	—	—
Parilla	1209	—	—	Williamstown	1194	11	15
Parilla Well	1208-9	14	18	Willowie	1182	16	13
Parrakie	•	—	—	Wilmington	•	16	13
Paruna	•	—	—	Windsor	•	—	—
Paskeville	1197	11	15	Winkie	†	—	—
Pata	•	—	—	Wirrabara	1186	—	—
Penola	•	5	2	Wirrega	•	—	—
Petina	1200	26	23	Wirrilla	1194	12	9
Pinnaroo	†	18	15	Wirrulla	1205	12	—
Pompoota	•	9	13	Wolowa	•	—	—
Poochera	1201	5	2	Wookata	•	—	—
Port Broughton	•	11	15	Wudinna	•	—	—
Port Elliot	•	16	20	Wynarka	1208	—	—
Port Germein	•	19	16	Yacka	•	15	12
Pygery	•	12	9	Yadnarie	1202 4	15	12
Ramco	1208	14	11	Yallunda Flat	1205	—	—
Rapid Bay	•	5	2	Yaninee	•	—	—
Redhill	•	—	—	Yeelanna	•	12	9
Rendelsham	•	16	13	Yongala Vale	•	—	—
Renmark	•	10	14	Yorktown	•	—	—
Riverton	•	—	—	Youngusband	•	17	14
Riverton (Women's) ..	•	—	—				

* No report received during the month of June.

† Formal.

‡ Held over until next month.

A.M. Annual Meeting.

THE AGRICULTURAL BUREAU OF SOUTH AUSTRALIA.

Every producer should be a member of the Agricultural Bureau. A postcard to the Department of Agriculture will bring information as to the name and address of the secretary of the nearest Branch.

If the nearest Branch is too far from the reader's home, the opportunity occurs to form a new one. Write to the department for fuller particulars concerning the work of this institution.

REPORTS OF BUREAU MEETINGS.

UPPER-NORTH DISTRICT.

(PETERBOROUGH AND NORTHWARD.)

HOOKINA (Average annual rainfall, 12in.).

May 15th.—Present 10 members and 6 visitors.

FENCING.—The following short paper was read by Mr. R. Wardleworth:—"A fence that is well erected and kept in good repair is an asset to the farm, because it adds to the value of the property and saves time which otherwise would be spent in looking for stock. A good, serviceable 6-wire fence can be constructed of posts 5ft. 6in. long, placed 20in. into the ground, 12yds. apart, with 2 hardwood droppers in between; strainers 7ft. long, 3ft. in the ground, and set at distances from 100yds. to 120yds. This fence should be 3ft. 10in. high, and with a barb on top will prove both sheep and cattle proof. Wire gates are a continual source of trouble. A very useful, cheap, and easily constructed gate can be made with 3in. x 1in. stringy bark." In the discussion that followed, Mr. S. Stone said that in ground that would not drift, netting made the best fence, and ultimately would prove just as cheap as a wire fence, because there was no time lost running after sheep that would get through a wire fence. Mr. B. A. Murphy did not favor the use of droppers where large stock were kept, but would make a fence 4ft. high, using gum or pine posts 5yds. apart. Mr. H. V. Henschke said where timber was plentiful, he would not use droppers, but when it was difficult and expensive to obtain timber, he would use iron posts.

MORCHARD (Average annual rainfall, 13.50in.).

May 17th.—Present: 13 members.

FARM GATES.—In the course of a short paper dealing with this subject, Mr. N. S. Lillecrapp said good gates meant a considerable saving of time on the farm. He spoke in favor of wide wire gates in the paddocks for teams and implements, and well-hung stringy bark gates around the homestead. The gates should be hung with a strut from the bottom hinge to the top corner, with a barbed wire on top to keep animals from leaning on the top of the gate. He did not advise iron gates because they were difficult to erect, on account of the weight, and gates made with iron piping were easily bent and broken. In discussing the paper, Mr. Kupke said some years ago he bought 20 iron pipe gates, and at the present time there were only four in use. He favored well-hung wooden gates. A keen discussion took place on the subject "Adulteration of Pollard and Bran." Members tabled samples of pollard and bran, which contained 45 per cent. of ribs and cocky chaff, and other rubbish.

WEPOWIE (Average annual rainfall, 13in. to 14in.).

May 13th.—Present: eight members.

FALLOWING.—The following paper was read by Mr. L. R. Jasper:—"Fallowing is recognised as one of the most important factors in successful wheat growing. The work should be commenced as soon as seeding is finished, and completed, if possible, by the end of August. Late fallow does not give the best results, especially if the ground is dry. When ploughing is commenced, care

should be taken to see that each share is cutting the correct width of ground evenly, and that the mould boards turn the soil completely over. Three-and-a-half inches is deep enough for this district. After ploughing is finished, a heavy set of harrows can be run over the fallow to break the land down. After the land has been cultivated, it should be left until the summer, and if summer rains fall the harrows should again be used. Where stubble land is to be fallowed, the cultivator can be used, but it would first be necessary to burn the straw off after harvest, and then, when seeding is finished, the land can be cultivated with a draught cultivator to a depth of about 3in. If worked a couple of times with the spring-tyne cultivator, the condition of the land will be improved." In the discussion that followed, Mr. T. F. Orrock favored ploughing between 4in. and 5in. deep for fallowing, and thought a better way to prepare for fallow on stubble would be to cultivate directly after harvest, then one extra working could be given in the spring.

ORROROO, May 24th.—There was a good attendance of members and visitors at the May meeting of the Branch, when several questions of local interest were brought forward for consideration.

HOOKINA, June 12th.—A paper, "Waste on the Farm," was read from the *Journal of Agriculture*, and an interesting discussion followed.

WILLOWIE, May 15th.—Several labor-saving devices were exhibited. Mr. E. Jacka showed a simple improvement to the bag lifter whereby the chain could be held permanently in position. Mr. A. Bartlett tabled a new style of eyebolt. Mr. S. Mountford exhibited an improved form of staging for water troughs.

MIDDLE-NORTH DISTRICT.

'PETERBOROUGH TO FARRELL'S FLAT.)

GLADSTONE (Average annual rainfall, 16in.).

Present: 20 members.

CARE OF FARM MACHINERY.—In a paper dealing with this subject, Mr. G. Smallacombe said in view of the high price of farm implements, it was surprising that so few farmers displayed concern as to the proper care and maintenance of the machinery. One could not go into any of the rural areas without noticing ploughs, cultivators, &c., lying out in the paddocks where they were last used. The harvester and other costly implements containing woodwork should be placed under shelter, but in many instances the protection afforded was not sufficient to keep fowls and birds from roosting on the machines. If a farmer were compelled to expose his machinery to the weather, it should be painted regularly to keep the rain and sun from getting into the woodwork and rotting it. Farm machinery required constant attention if it was to be kept in proper repair, and every machine should be put in good working order before it was sent into the field. Seeding and harvesting were the two busiest periods of the year on the farm, and the farmer could not afford to lose any valuable time when putting in and taking off the crop. Therefore, he should overhaul all the machines before commencing. All worn-out parts should be replaced with new ones. Fencing wire should not be used instead of bolts in any machine, but new bolts put in and screwed up tightly to keep everything in its place. After a machine has been idle for some time, kerosine should be run through all the bearings to ensure a free passage for the oil. The binder knives should be sharpened, and the fingers tightened so that the knife moved freely. If the knife track were kept well oiled and the knife free from clogging material, the machine would run smoothly. It was a good plan to have a drum of water at the end of the paddock, and every round or two put some water on the knife. The harvester should receive special attention, particularly the comb and winnower. The comb should be closed if needed, so that it would strip clean, and the winnower and elevators should be so regulated that they would not lose any wheat. In the discussion that followed, Mr. C. O. Bennett said it was most

essential that all bolts and nuts should be kept tight. Not only did the vibration consequent on a lack of care in that respect tend to wear away the mechanism, but, as a further consequence, the machine itself would go out of correct alignment. Mr. T. J. Brown contended that the proper time to attend to machinery was after it had come out of the crop, rather than when it went into the crop. Mr. J. J. Gale said farmers generally were very careless about the machinery. He had frequently seen valuable machinery left out in the open, sometimes for the purpose of blocking up a gateway. Every farmer should keep a notebook and a pencil, and jot down what was wanted in the way of parts and repairs from time to time. All machinery should be kept under cover when not in use, and painted when necessary. Keeping nuts screwed up was essential. Mr. A. J. P. Kunnick said it behoved every farmer to see that the implements were well looked after and housed. Replying to Mr. Black, Mr. Smallacombe said that for woodwork he would recommend a shed with a straw roof in preference to one with an iron roof. That was not a matter of great moment, however. Their main concern should be to see that the implements were kept dry. Mr. R. E. Lines always made it a practice to screw up the machinery after harvest. He did not keep a book, but wrote on the machine with a piece of chalk the names of the parts required.

GLADSTONE (Average annual rainfall, 16in.).

Present: 11 members.

MAINTENANCE OF ROADS.—Mr. Jas. Potter read the following paper:—"The question of the bad state of country roads is often discussed by farmers, yet the farmers themselves are a good deal to blame, because of the heavy loads that are carted on the roads. Before trolleys came into general use, a farmer carting a 50-bag load of bush, bags of wheat, was supposed to be carting a good load, which is equal to about 70 bags at the present time, but nowadays farmers are not satisfied unless they are carting from 90 to 130 bags on the

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trolleys. Not any road can be expected to carry such a weight without getting cut into holes. During the rainy season, motor cars push out the dirt from the holes, which makes it difficult to keep the roads in repair. If farmers want to assist in keeping the roads in good repair, they should try to avoid cutting up the roads during the summer. If a road is once allowed to get into a bad condition, much money is required to put it in order again. A new metal road will cost from £6 to £11 per chain, and if a farmer has a mile or more of road frontage, with the rates at from £3 up to £20, he should readily see that his money does not go far towards doing very much road work in a year. Then there are some farmers who charge a high royalty when contractors are desirous of obtaining stone. When the council endeavors to repair and make roads, farmers should allow the contractors to have stone at a very low cost, if not free, because the cost of the stone will be included in the contractors' charges." In discussing the paper, Mr. E. T. Holit said his observations had led him to the opinion that the worst roads were those upon which wagons seldom travelled. With regard to the matter of stones, he was prepared to give all that were to be obtained on his land provided the district council carted them on to the roads. Mr. A. B. Blesing, who had had 10 years' experience of district council work, had noticed that it was not the farmers who did most of the damage; teamsters were in a great measure responsible for the bad conditions in which roads were frequently found. Teamsters, when they found the roads difficult to pass over, were prone to double the strength of the team and pull the load over the difficult section. Despite the earnestness of councillors, it was very difficult to get contractors to carry out work as it should be done. Contractors would give up the job if they could not get their own way. As for inspectors, it was not possible to get a full-salaried man for the position. That official had other duties to perform, and, therefore, district councillors had arrived at the conclusion that they had to put up with things as they found them, do the best they could, and endure the abuse of the ratepayers. The trouble was that the bad condition of the roads was due, in no small measure, to want of thought on the part of those using them. If rural communities would only exercise commonsense—a little care and thoughtfulness—complaints about the evil conditions of the roads would be considerably lessened. Mr. E. T. Brown hardly thought the farmers should be blamed so much. Motor cars were very severe on the roads. Mr. C. H. Lines thought that if the tire inspectors kept the weights down, it would, to a great extent, do away with bad roads. He would gladly give all the stone on his property to the council if the latter body would undertake not to let the stock out. Mr. Potter in replying to Mr. Lines said he agreed with Mr. Blesing that it was difficult to get a good man as inspector. The salary of the inspector being insufficient, he could not give adequate time to the job. Mr. G. M. Black endorsed the remarks of Mr. Blesing. His experience was that very few ratepayers attended the meetings of the district councils, and consequently they had no idea of the difficulties with which councillors had to contend. Mr. J. Eley said it would pay farmers using roads to do something towards keeping them in repair. He knew of cases in which, owing to the bad state of the roads, the sum of £150 per year would hardly cover the cost of repairs to vehicles. If much less than that sum had been devoted to the repair and upkeep of roads, the necessity for repairs to vehicles would have been almost eliminated.

MANNANARIE.

May 15th.—Present: 18 members and 5 visitors.

QUESTION BOX.—The meeting took the form of a Question Box when several interesting topics were discussed.—Mr. H. E. B. Robinson asked the best method of scalding a pig. Most members favored dipping the pig in boiling water until the hair could be pulled off. The pig should then be lifted out of the water and scraped quickly. Some members considered boiling water too hot, and thought the heat correct when blood dissolved quickly in the water. Mr. C. N. Bretag asked the most suitable method of top dressing grass land with super. Members favored top dressing with the drill, with the hoes on the ground, in preference to drilling with tubes removed or broadcasting. In reply to a question from Mr. J. Symons regarding the proper time to ring bark gum trees, Mr. A. I. Jones suggested doing the work during the summer and early autumn. Mr. W. Crawford asked what age lambs should be when tailing, and if the testicles

should be drawn until the strings broke, or whether the strings should be cut when the testicles were drawn sufficiently. Messrs. A. T. and J. Symons favored drawing the testicles until the strings broke, because the broken strings healed quickly and checked bleeding. Messrs. R. Baynes, and W. Crawford were of the opinion that pulling the testicles until the strings broke was very severe on the lamb and thought the strings should be cut, or held very tightly with the fingers on the pouch, and so cause the strings to break off short.

NELSHABY.

February 23rd.—Present: 18 members and visitors.

ECONOMY ON THE FARM.—Mr. C. Plenty read the following paper:—"The high prices of land, implements, and commodities, compared with the low prices ruling for farm produce, make it imperative for the present-day farmer to put into operation the most economical methods of production. Waste will creep in on well-supervised farms. By economy, I do not wish to convey the impression of saving money under any and all circumstances, because, after all, 'a penny wise and pound foolish' policy is nearly, if not quite so disastrous, as allowing waste. Empty cornsacks at seeding time are frequently thrown into a corner of the barn and allowed to remain there until harvest, and by that time 50 per cent. may have been rendered useless by rats and mice. A very good plan to prevent such damage is to sling the bags on wires suspended from the barn roof. Thread a bottle with a hole in the bottom on either end of the wires to prevent mice climbing down. The purchasing of a blacksmith's outfit is one of the most economical investments, and no farm should be without this equipment. Making shares for the plough and cultivator are ideal wet-day jobs. I have effected as large a saving as 18s. on a dozen 5in. cultivator shares. A 4½in. piece of steel cut diagonally will make a 5½in. cultivator share, and reduce waste to a minimum. Take every care of the harness. A very good collar rack can be made with a piece of 2in. x 3in. timber and a few old dray or wagon wheel spokes. Bore large holes the required distance apart in the piece of timber, point the spokes, and drive them into the timber. Give the spokes a slight upward tilt to prevent the collars slipping, and fix the rack at a convenient height in the harness house. Be careful in the selection of the implements, choose the largest and most labor saving that the farm will warrant, and also see that machines are obtained that will work with satisfaction in your district."

MARKETING FARM PRODUCE.—At a further meeting, held on March 22nd, Mr. F. De Silver, in the course of a short paper entitled "Marketing Farm Produce," said produce from the farm should always be placed on the market in the most attractive manner. If chaff were sold it was important that the hay should be cut at the right stage, in order to ensure that it would be of a good color. It was also necessary to examine the chaffcutter and see that the knives were properly sharpened. Wheat harvested for grain should be thoroughly cleaned, and all foreign grains and rubbish removed. A short discussion followed.

NELSHABY.

April 18th.—Present: 14 members.

SIDE LINES.—The following paper was read by Mr. P. Noble:—"There are many side lines that can be undertaken successfully in conjunction with wheat growing. In fact, some are almost a necessity to obtain the best results from wheat growing. One side line on a wheat farm is the cultivation of oats. They make an excellent rotation crop, and open up the way for a side line in hay and chaff. Probably the most important side line on the wheat farm is the management of sheep. This necessitates good fences, properly subdivided paddocks, and a good water supply. Barley growing as a side line will enable the farmer to keep cows and pigs successfully. This, however, I would not advise any wheat farmer to adopt unless he has plenty of surplus labor. Poultry run on proper lines, are an excellent side line. The surplus wheat can be used for feeding, and the birds will provide the farm with eggs and meat. There are various kinds of seeds and plants that can be raised for which there is always a ready sale, but care must be exercised that these do not clash with the main harvest. An acre or two of almonds, currants, or wattles will prove profitable." In the discussion that followed, Mr. L. Roberts thought sheep were the best line to run in conjunction with wheat growing. If fences were good, sheep did not require a great deal of attention. Cows, pigs, and poultry were good paying lines, but required

proper attention. He also thought breeding good draught horses a payable proposition. Mr. A. M. Lawrie said that all the lines mentioned were good, but too many lines should not be attempted. Only those which could be properly attended to without neglecting regular cropping operations should be adopted.

BRINKWORTH, June 16th.—Eighteen members and three visitors attended the June meeting, when a paper, "Early Settlement on the West Coast" was read by Mr. C. Provis. An interesting discussion ensued, and the writer of the paper replied to numerous questions.

GULNARE, May 21st.—Nineteen members attended the inaugural meeting of the above Branch, when the Assistant Dairy Expert (Mr. H. J. Apps) attended and delivered an address, "Popular Breeds of Cattle." It was decided that meetings of the Branch should be held on Wednesday, on or before full moon, at 8 p.m.

WIRABARA, May 17th.—Fifteen members and several visitors attended the May meeting. A paper, "Tilling the Soil," was contributed by Mr. F. Carson, and an interesting discussion followed.

LOWER-NORTH DISTRICT.

(ADELAIDE TO FARRELL'S FLAT.)

BETHEL.

May 6th.—Present: nine members.

FARM MANAGEMENT.—Mr. E. N. Siegert read the following paper:—"A farm of, say, 500 acres should be fenced into four paddocks, three paddocks of about 150 acres for cultivation, and a 50-acre paddock for stock. The cultivation paddocks should be cropped in rotation, one fallowed, one cropped, and the other left for grazing a flock of, say, 100 well-bred ewes. These should, on an average year, turn in 80 per cent. lambs which could be marketed when fattened. The farmer should also keep five good Jersey cows and about six good breeding sows which could be fed on milk and barley. It would be advisable to have a small plot of lucerne to provide green feed for the cows and pigs in the summer. Seeding should commence the first week in May, and the wheat should be pickled. Ten acres of oats and five of barley should be sown for fodder, the balance of the land could be cropped with wheat. Fallowing should commence the latter end of June, and be completed early in August, after which the land should be worked with the harrows. Shearing should be started at the end of August, so that the flock could have the run of the fallow to keep the weeds under control. Cultivation should be commenced in September, and the work continued until haytime. When the hay is cut, it should be allowed to lie on the ground for two or three days before being stooked. If carting is commenced directly cutting is finished, the hay should be in the stack before the wheat is ripe. The wheat which is to be left for seed should be harvested last, in order to be certain that the grain is properly ripe. The hay stack should be covered as soon as the wheat is carted, to prevent the hay being spoiled with early rains. A large straw stack should be built in the stock paddock to provide shelter during the winter." A keen and interesting discussion followed.

NANTAWARRA (Average annual rainfall, 15.90in.).

May 15th.—Present: six members.

DAIRYING ON THE FARM.—Mr. G. Herbert read the following paper:—"Side lines on the farm are paying propositions. The farmer who grows wheat alone and depends on that for a living is not so sure of showing a profit each year as the man who is more industrious and has various sidelines. On most farms sheep, cows, pigs, and fowls can be found, but with the exception of sheep these are kept to provide household necessities. I am of the opinion that they could be run on a larger scale, and thereby become a source of income to the farmer." Continuing, Mr. Herbert stated that a cow of fair average quality should produce 8lbs. of butter per week from March to October inclusive—32 weeks—

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production of 256lbs. and 6lbs. per week for the remaining 20 weeks of the year. The average price of butter for the eight winter months was 1s. 6d. per lb., and for the remainder of the year 1s. 10d. per lb. The production should therefore total £30 4s. for the year. One man should be able to look after 20 cows, and if the animals kept in full profit all the year, would return £304, but a nine months' milking period was all that could reasonably be expected from each cow, and that would, therefore, reduce the income to £453. In reference to expenses, 15lbs. of chaff and 3lbs. of oats (with a small paddock) should constitute a fair day's feed for a cow. For 20 cows it would be 39 tons hay and 135 bags oats for nine months. The three remaining months the cows would be in the paddock, and feeding would be based at 1s. per head per week for dry feed, and 1s. 6d. for green feed, which would average approximately 1s. 3d. per head per week. A small quantity of salt was an essential for the welfare of the herd. The expenditure on the herd for 12 months he estimated as follows:—39 tons hay at £4 per ton, £156; 135 bags oats at 4s. per bush, £81; 20 head cattle paddocking at 1s. 3d., 12 weeks, £15; salt, £1; man's wages, £1 15s. and board 15s. per week, £130; Total, £383. That left £70 profit for the year. The heifer calves would more than replace losses, and the bull calves could be marketed at a profit. The capital outlay would only be a matter of £200. In the discussion that followed, Mr. R. Uppill did not approve of keeping cows as a side line, owing to the amount of work involved in giving them proper attention. He was of the opinion that the feed required by the dairy herd could be better utilised by feeding it to sheep. Mr. A. F. Herbert favored keeping cows. The farmer would be well repaid for the amount of work done, and for the attention given the cows by the profit they returned. Members generally were against keeping cows owing to the work they involved.

OWEN.

May 16th.—Present: five members.

HAND FEEDING SHEEP.—Mr. H. Bowyer contributed the following paper:—“From experience I am convinced that it pays to hand feed sheep during the months of April and May. This keeps the sheep in good order, and enables the ewes to rear the lambs without losing condition. During the autumn, one often hears a farmer say, ‘I am getting short of feed, and will have to sell some sheep; if I could only keep them until the rains come I would have plenty of feed.’ The same man often has plenty of hay, but never thinks of feeding it to his sheep. The stock are sent to the market, and the farmer has to accept considerably less than their real value. After the rain comes, he buys back the same class of sheep at, say, 7s. 6d. per head dearer. I do not wish to convey the idea that sheep should be entirely hand fed, but rather that the natural herbage should be supplemented by hand feeding. A good plan is to give the sheep a mixed ration. I am now feeding a flock of 440 sheep, $\frac{1}{2}$ ton of oaten hay, and $\frac{1}{2}$ ton of oaten chaff, mixed with about 200lb. of Cape barley each week, and I find some take to the chaff whilst others prefer the hay. Taking the hay at £1 10s., chaff £2, barley 12s.; a total of £4 2s.—2½d. per sheep, allowing £1 per week for labor, or ¾d. per head, giving a total of 2½d. per head. Eight weeks' feeding would amount to 1s. 10d. per head, thus showing a profit of 5s. 8d. per head. If this plan is adopted, more sheep can be carried, and the droppings will help to keep the land in better heart, and grow more feed. There are many points in favor of hand feeding sheep. They become quiet and docile, and enable the farmer to work amongst them during the lambing season, which is absolutely necessary. The sheep become more contented, and by hand feeding it saves losses through stinkwort. The blowfly pest is becoming a serious menace, especially at this season of the year, and it is a common occurrence to find 8 per cent. to 10 per cent. of the lambing ewes struck every few days. All that can be done is to clip the wool closely where the sheep has been struck, and apply a dressing. The sheep that are roughly shorn around the crutch, suffer the most. From inquiries made, I find that closely crutching the sheep in April is the best cure for the blowfly, because it keeps the sheep clean and dry. It would be advisable for some of the farmers to purchase a small hand-shearing machine for crutching the sheep. Another serious pest to the sheep is the fox, which accounts for heavy losses of lambs. It behoves every farmer who has sheep to do his best in destroying the foxes, and poisoning is the most effective method. The bait should be cut up into small pieces and treated with strychnine, to which a little

carbonate of soda might be added. It is also advisable to drag a trail behind the cart and distribute the baits about 100yds. apart, late in the evening. Lamb-killing foxes are very cunning, preferring to kill a lamb every night, but small birds or mice, or the tongue of a young lamb that has just been killed, will sometimes prove a tempting bait. It is also a good plan, if possible, to move the sheep into another paddock.' In the discussion that followed, Mr. W. J. Marshman stated that it was necessary to hand feed sheep because of the greatly improved prices for both meat and wool. He favored feeding on 1lb. chaff and 3lb. of grain per sheep per day. For troughs he used sheets of galvanized iron, riveted together, the ends being bent to form the trough. The trough could be kept in position with wires and boards fastened to the ends. Such a trough was cheap and effective, and would accommodate 30 sheep. He advised placing the troughs near water, and keeping salt in one trough. Salt creates a thirst, and the sheep drank more water and kept in better condition. He favored crutching with a machine. Mr. A. N. Freebairn thought it payed to feed, if only to save the break in wool. When stinkwort was prevalent, hand feeding provided a change in the diet, and thus made stinkwort less dangerous. He advised the following mixture for preventing blowflies from striking sheep:—Tar, two pints, castor-oil one pint, and 1 dessertspoonful of arsenic. Mr. R. S. Harkness said that only by hand feeding could a farmer in the settled areas keep his flock intact. During a dry autumn, the sheep kept their condition better, and the wool staple maintained an evenness of strength and elasticity. Hand feeding helped the lambing flock, the ewes kept better condition, and if grain was added to the feed, it stimulated the milk flow. The bag feeder was economical and very efficient. In making a feeder, super bags sewn end to end the required length served the purpose, and were generally plentiful on a farm. A single wooden post should be placed in the ground at either end of the proposed trough. Pairs of iron droppers the width of the trough should be firmly placed into the ground, 4ft. 6in. apart between the wooden posts. Wires could then be threaded through the edges of the bagging and the iron droppers, and pulled tight, and fastened at the wooden posts at the end of the trough. The wires should be threaded through the iron droppers high enough to keep the bagging 2in. or 3in. off the ground, and thus prevent dampness affecting the feed during wet weather. A third wire should also be threaded through the bottom of the feeder and fastened to the wooden posts to prevent the feed blowing about during windy weather, and thus minimise waste. Provided that sheep could feed at either side of the trough, two sheep could feed to every foot of troughing. He preferred short chaffed hay mixed with oats. One-and-a-half pounds of both chaff and grain per day would fatten a sheep. Barley and peas, or rocky chaff and molasses, could also be fed to advantage.

OWEN.

June 13th.—Present: eight members.

DAIRYING.—The following paper, under the title "Are Cows Profitable?" was read by Mr. A. N. Freebairn:—"In this paper, reference is not made to the commercial dairy farmer, but to the wheat farmer who keeps cows to provide household necessities, and also as a side line to cropping operations. A much-debated subject amongst farmers is, 'Are Cows Profitable?' Some farmers who say that cows do not pay, hold that opinion because they are too lazy to milk the animals, but it is admitted that cows are a nuisance. It is evident that the farmer who devotes much time to cows will neglect, to a certain extent, wheat growing and sheep breeding operations. Many a farmer in receipt of a large cream cheque wonders why the farm is not paying. This has been noticed repeatedly. A small stubble paddock burnt off and sown with barley, will return more than the produce from a number of cows; and, in addition, there is the barley stubble for the horses in harvest, and later, a splendid growth of feed, which is very suitable for lambing ewes. There is also the slavery of milking, morning and night, in all weathers, whereas sowing and reaping barley does not involve much work. If all cows except three were sold, and extra sheep bought, it would make conditions on the farm better; more time could be devoted to wheat and sheep, and the absence of the cream cheque would be more than compensated for. Most Australian farmers are too prosperous to bother with cows, though it must be remembered that in the north of this State,

when there had been a failure of the wheat crop, the cow had paid the bill, thus enabling the farmer to remain on the land. For the farmer who only keeps sufficient cows to supply the family, and a few pounds of butter to reduce the store bill, any class of cows seems to be good enough. The so-called 'mongrel' is able to live on a very small allowance of fodder, and is affected by neither heat nor cold. Under similar conditions, the pedigreed animal would not give results, if, indeed, it were able to exist at all. If the farmer considers cows profitable, and desires to go in for milk or cream, it is, of course, advisable to breed only from the best stock, and to employ a bull whose progeny have proved profitable cows. It is also advisable to feed the cows with wholesome milk-producing foods. I favor the dual purpose animal as the most suitable breed for the farmer." In the discussion that followed, Mr. C. S. Marshman considered dairying a good side line on the farm, but if carried out extensively in conjunction with wheat growing, both industries often failed. He thought that dairying was not practicable in that district, because there was not sufficient feed throughout the year. Cows were useful to eat up roughage. Mr. W. J. Marshman thought dairying a drudgery, and it certainly was not an eight-hours-a-day job. He doubted if cows could compete with sheep in the Middle North at the present time. Pigs helped considerably to make cows pay; the pigs he had kept and fed on the skim milk from cows had brought in nearly as much revenue as the cows. He had found that since he had kept a pure bred bull, the heifers had improved, and developed into better cows. He also favored allowing the calves to run with the cows for at least three days, the "beastings" were necessary to assist in keeping the calf's digestive system in order. Cows should be hand fed, except when the herbage was in flower, when they were able to obtain a well-balanced ration. Of the cereals, he favored oats, because they stimulated the milk flow, and kept the cows in good health. For cream production, he favored the Jersey or Ayrshire. Good dairy cows could be selected from all breeds. Cheap labor was essential to make dairying a successful undertaking. He stated that it was difficult to determine where the profit from the cows terminated. Produce from cows was necessary in the kitchen. If wheat decreased to 3s. per bushel and fat lambs dropped in value, farmers would be glad to keep cows, sell the cream, and feed skim milk to pigs. For cream and butter produce, he preferred the Jersey breed, and for general purposes, the Shorthorn. Cows of the latter breed always brought a good price for beef after they had been finished with as milkers. He considered cows on a farm were profitable, if not directly, then certainly indirectly.

STOCKPORT (Average annual rainfall, 15.89in.).

April 17th.—Present: 12 members.

The report of the delegates to the Lower Northern Bureau Conference was received, and the question of inaugurating crop competitions was discussed.

REARING CALVES.—Eleven members attended a further meeting held on May 16th, when Mr. G. Cant, in the course of a paper dealing with the above subject, said—In the first place, it was essential to have the services of a first-class bull. The heifer calves should be selected from the best cows. After birth, he thought it advisable to allow the calf to drink as much milk from the cow as it required, then the calf should be taken from the mother. It was not necessary to feed it for 24 hours. An important part was to see that a clean, warm, dry place was provided for the calf. Clean feeding buckets were absolutely essential to the good health of the calf. For the first few days, the calf could be fed on new milk, after which a little skim milk should be added to the ration, the skim milk being gradually increased until the calf was able to take all separated milk. When the calf began to chew the bedding, a ration of chaffed hay, crushed oats, and bran should be fed. After the calf was weaned it should always be supplied with ample fodder. The speaker considered that calves reared in the manner suggested, would be quite ready to come in at two years of age.

TARLEE.

April 22nd.—Present: 11 members and visitors.

MOST PROFITABLE COW FOR THE FARM.—Mr. A. T. Hill read the following paper:—"This question is one which is largely influenced by the opinion of the farmer, because if he does not favor a particular breed, he is liable to neglect

it, and the result will be a failure. If, on the other hand, he has a fancy for any one breed, he will give it every care and attention, and this goes far towards making it a success. I favor the Holstein Friesian. They are hardy animals, splendidly constituted, and renowned for large yields of both milk and butterfat. The Friesian is the backbone of the dairying industry in Holland, Denmark, England, Canada, the United States, and New Zealand, and is also becoming very popular in Australia." Mr. Hill then traced the early breeding and the introduction of the breed into Holland. Continuing he said, "The contention that the Friesians are not economical producers, and that they require considerably more feed than the other breeds, is purely a prejudiced statement by breeders of other types of cattle. Recent experiments conducted in America prove that the breed are the most economical producers. A cow of any breed requires an abundance of food if she is a good producer, and the fallacious idea of a cow giving a large volume of milk on scanty food has time and again proved to be erroneous. That they must be dairy cattle of the first order, is evidenced by the great length of breeding, and it must not be forgotten that nearly all the modern breeds in Europe owe, in no small measure, the ability to milk through the influence of Friesian blood in their veins." Three classes of cattle established in the Netherlands and the color standards required were also explained by the speaker. "No one will deny the fact that the Friesians are great milkers; they do not possibly produce milk as high in butterfat content as some of the other breeds, but with the large flow of milk which the Friesian is noted for, the aggregate yield more than covers the deficiency in butterfat. In the River Murray Herd Testing Association, Friesians have won two years in succession in both the yield of milk and butterfat content, against all other breeds. Again, in the Official Test of Pure Bred Cows in South Australia, ending June 30th, 1923, six Friesians produced the highest yield in both milk and butterfat. In South Australia, Friesians have the records for the production of milk and butterfat in the single cow tests for 24 hours, 7 days, 30 days, and 365 days." Records of champion performances of Holstein cows in America and

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Canada were then cited by Mr. Hill. "The figures quoted above are official, and prove that not only are the black and whites big milkers, but that they are also great butterfat producers. One of the reasons why the black and whites produce such large yields is the fact that they are able to maintain their flow so consistently through the lactation period. The Friesian is considered to be a large eater, and this is argued as being a disadvantage by the Jersey fanciers. The Holstein Friesian is a large-framed cow, but she has something to show for what she consumes, and will always market well for beef. Naturally, too, Friesians produce large calves, and these at two months old would be worth about £1 per head more than the Jerseys. If the Holstein calves are fattened as steers, there would be a considerable difference, because the butcher has a strong dislike for Jerseys. The majority of farmers keep pigs, and consider them a paying proposition, and more so when plenty of milk is available. The Friesian, because of its great milk flow, not only gives high butterfat yields, but supplies large quantities of skim milk for the pigs. From the point of view of milk, butterfat, or beef production, the Friesian leads the way, and I am confident that the Friesian is the most profitable cow, whether for wholesale milk production, or for the supply of cream." In the discussion that followed, Mr. A. M. Fuller considered that the most profitable cow for the farmer to keep would necessarily be a dual purpose beast. He gave preference to the Milking Shorthorn. He regretted that farmers generally did not pay enough attention to the selection and grading of their dairy herd. That type of beast was a wonderful milker, and of a particularly robust constitution, and eagerly sought after by the butchers. The calves were also exceptionally good "doers," and noted for their early maturity. Mr. J. McInerny advocated the Milking Shorthorn for either milk or a butchers' beast. Mr. L. Arthur believed the Milking Shorthorn to be a good type of cow for the farmer to keep, but like all cows, needed a good deal of care. Mr. W. Neate thought the Friesian a great producer, taking her all the year round, and she also produced a good calf. Mr. W. S. Kelly said it was to be regretted that districts did not fix on a particular breed of cattle to suit their districts, as was done in Britain. He pointed out the advantage of the subsidy offered by the Government for pure bred bulls, and urged farmers to take advantage of the offer.

TARLEE.

May 20th.—Present; 19 members and five visitors.

FARM MANAGEMENT.—In the course of an address dealing with the subject, "How to Make Our Farms Pay," Mr. A. S. Toil, of Gawler, said he had experienced all the difficulties common to the man on the land—drought, fire, water shortage, disappointing crops, &c., but he found that those could be overcome by industry and the application of scientific methods and a good business and general management of the farm. It was not necessary to have large holdings, but it was essential to adopt a system of rotation. The system adopted by the speaker was one-third fallow, one-third second crop, one-third first crop, making a rotation of bare fallow, wheat, and oats or barley on stubble, thereby giving the whole of the farm a change to oats or barley once in three years. That system provided a great preventive measure against "take-all" and saved the soil from wheat "sickness." If the system of half-fallow and half-crop were adopted, oats should be sown occasionally, even on fallow, and the result would be very beneficial. If, however, the former system of rotation was followed, it would be advisable to give the stubble land good tillage. It should be cultivated in the autumn, after having been fed bare by sheep. He advised carrying as many sheep as possible. They were a very profitable side line, and in addition to keeping down weeds, their droppings fertilised the soil. He considered that the Tarlee district could, with the former system of rotation in operation, easily carry one sheep to three acres for fattening by the end of fallowing, the sheep having been purchased off shears, or one ewe to four acres. Hand feeding the sheep during autumn or whilst waiting for stubble paddocks for grazing should be carried out. He preferred wethers off shears, because they did not require so much attention as ewes. The latter required the most attention during the busiest times on the farm, either with flies or lambing. By careful buying and proper management, sheep would usually show enough profit to pay for super and meat. He believed in persistent heavy dressings of super, not less than 130lbs. to 140lbs. per acre of 36 per cent. super. He firmly believed

in the advantages of early fallow. The work should be finished by the end of August, and subsequent cultivation performed whenever a surface crust or weeds rendered it necessary. The stubbles should not be burned, but stocked heavily, when the straw could be ploughed in without any difficulty. He considered it false economy to try to work with a horse short, a machine short, or a man short. The work should be done systematically, and up to schedule. If the men employed on the farm received good treatment and good wages, and worked reasonable hours, very little labor trouble would be experienced. He considered it important to keep all farm buildings, fences, and other improvements in good repair. By-products of the farm should not be wasted, but by keeping a pig or two, fowls, and a few cows, they could be turned into profitable side lines. He considered it necessary for every farmer to keep a simple system of books. A short discussion followed.

WILLIAMSTOWN WOMEN'S.

May 7th.—Present: 15 members.

BURNS AND SCALDS.—A paper under the title "Burns and Scalds" was contributed by Mrs. W. Grigg. From this paper the following is printed:—"Children are very liable to accidents from boiling water, other fluids, and burns. When a scald is at all extensive, it is of very serious import. A child with one-third of the surface of its body burned or scalded will probably die from shock; if it survives the shock, some internal inflammation may subsequently develop, causing death. The extent of a scald is a more important consideration than its depth. A large surface burn is more dangerous than a small deep one. Where the scald is extensive, it is advisable not to remove any clothes. Cover all the exposed scald with old, clean, linen rags or handkerchiefs soaked well in some sweet oil, and send at once for the doctor. The oil can be mixed with equal parts of lime water, and shaken thoroughly in a bottle before it is applied to the parts. The lime water relieves the pain, but it would be foolish to wait long for lime or lime water, because the injured parts should be protected from the air as quickly as possible. If oil is not at hand, vaseline may be used, or even butter or cream. The application of flour directly to the scald interferes with the easy treatment of the wounds by the physician. In smaller burns, when the clothes adhere to the injury, it should be softened with warm oil before the clothes are removed, and the wound immediately covered with equal parts of oil and lime water, or vaseline. Pieric acid is an excellent application for scalds and burns, about a teaspoonful should be dissolved in $\frac{1}{2}$ pint of hot water, and the wound covered with clean, old, linen rags or handkerchiefs soaked in the lotions. The first dressing should remain for couple of days without removal, and subsequently, the wounds should be dressed daily. When there is an offensive smell, it is necessary to dress the wounds twice daily. [A medical practitioner to whom this paper was shown prior to publication, made the suggestion that the attendant should put the dressing on in small strips about 1in. wide.

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This renders the subsequent dressings easier and less painful.—Ed.] Drinks of hot milk or hot milk, coffee, and water are helpful in overcoming the shock. They are infinitely better than alcohol in any form. Alcoholic drinks are harmful, as their temporary stimulating effects, are always followed by increased depression. The constant supply of hot water in teaspoonful doses acts as a good temporary stimulant to the heart and circulation. Hot gruel, groats, or other easily-digested foods should be given at regular intervals.

LIGHT'S PASS, May 15th.—Two papers, one championing the tractor, and one the horse, were read on the subject "Tractor v. Horse in Orchard and Vineyard." Mr. L. Plush read the paper favoring the tractor, and Mr. B. Schoiz supported the claims of the horse. An instructive discussion followed.

LYNDOCH, May 15th.—A paper dealing with the subject "Farming" was read by Mr. H. W. Lames, and an interesting discussion ensued. Other subjects of local interest were also discussed.

ROSEDALE, April 16th.—Twelve members attended the April meeting, when Mr. V. Hocking read a paper, "Principles of Breeding."

On May 20th, a further meeting of the Branch was held, and a number of subjects of local and timely interest were discussed.

STOCKPORT, June 10th.—Mr. R. Gillespie (Dairy Assistant) attended the meeting, and gave a demonstration of milk testing, and an address on subjects relating to the dairying industry.

WILLIAMSTOWN, May 16th.—Mr. S. R. Cockburn delivered an address, "Fertilizing Pasture Lands." A paper dealing with the same subject was read by Mr. F. E. Rix.

WILLIAMSTOWN, June 13th.—Mr. J. B. Harris (Orchard Instructor and Inspector for the District) delivered an address, "Pruning," and demonstrated his remarks with blackboard illustrations.

WILLIAMSTOWN WOMEN'S, June 4th.—Mr. J. S. Hammatt read an extract, "Hydatids," and an instructive discussion followed. Mrs. Filsen tabled home-made sausages, and gave members a recipe for making them.

WIRRILLA, May 17th.—Mr. F. Coleman (Member of the Advisory Board of Agriculture) attended the meeting and delivered an address, "Wheats for Hay and Grain." A collection of varieties of seed wheat was exhibited by Mr. Coleman.

YORKE PENINSULA DISTRICT.

(TO BUTE.)

BRENTWOOD.

April 17th.—Present: 19 members and four visitors.

THE STOCK-CARRYING CAPACITY OF THE FARM.—Mr. A. E. Twartz read the following paper—"With the present high prices prevailing for wool, every attention should be given to the improvement of pastures. Some soils do not lend themselves to profitable cultivation, others require periodical cultivations interspersed with temporary pasture, whilst others lend themselves to continuous crop growing. Considerations in this district will naturally apply to the first two classes of soil. The means of increasing the livestock carrying capacity of the farm are:—(1) manuring or top-dressing, (2) growing fodder crops, (3) encouraging natural grasses and edible plants and checking the spread of plants of inferior feeding value, (4) systematic handling of stock and management of pastures. In regard to No. 1, it has already been proved that heavier applications of fertilisers improve the herbage. Good results are coming from every part of the State where pastures have been top dressed annually with 1 cwt. of superphosphate. This has been found in many instances to more than double the livestock carrying capacity. (2) I recommend for fodder crops in this district, Tunis barley and an early variety of oats. The barley makes rapid growth early in the winter, whilst the oats remain green later in the summer. Much is to be gained by this system, because in some cases the soils are light and deficient

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in humus, and continual cropping with cereals tends to exhaust the humus, and naturally the crops suffer. One way of returning humus to the soil is by crowding stock on small areas, and to do this fodder crops must be grown. (3) Much improvement in pastures can be wrought by attention to this point. Noxious weeds only take the place of other more serviceable plants. Manuring helps considerably to sweeten the soil, and in sweet soils clovers and good grasses are better able to hold their own against those plants partial to sour soil conditions, and which are usually of poor feeding value. (4) The systematic handling of stock and management of pastures has, in an indirect way, something to do with the improvement of pastures. For instance, great harm can be done by overstocking. Good judgment is required in feeding off a pasture. It is always better to remove stock a few days too soon than a few days too late, both for the benefit of the pasture and the stock. Whilst on this point, mention must be made of rabbits, for they do considerable damage in eating the sweet and better parts of the pasture, and destroy the plants by eating them too close to the roots. By increasing the stock-carrying capacity, not only the pastures are improved, but the livestock that is reared in the district will also be improved. In the discussion that followed, Mr. C. H. Boundy said the present price of wool and mutton would well repay more attention being devoted to fodder crops. He thought if more attention were given to stock, it would possibly prove a better paying proposition than wheat growing. During the present year he intended to top dress with super an area of virgin land, and would report the results later. Mr. J. J. Honner considered that the matter under discussion was only in its infancy in South Australia. He agreed that in some instances stock would pay much better than wheat. Older agricultural countries had found it necessary to resort to stock raising in conjunction with wheat growing. They had been successful, and under much greater difficulties than were experienced in South Australia. Men on small holdings often found it difficult to supply grazing for the stock, but the remedy was in growing suitable fodder crops. He spoke strongly of the value of spreading stable manure on the land, instead of dumping it behind the stable, as was often done. He agreed with the paper in respect to drilling barley and oats on hay ground, to fallow later, and so gain on the sheep and lambs more than could be gained by earlier fallow. Mr. J. Boundy said the subject was one of vital importance to the whole farming community. He drew a comparison between the stock-carrying capacity of the district 20 years ago and that of the present time. The advent of super had resulted in a wonderful increase in stock on the farms. Systematic manuring had increased stock-carrying, as well as increased wool yields, and enabled farmers to grow better crops of cereals, as well as natural fodder plants. Such being the case, farmers would do well to consider the matter of manuring and intense culture more than they had done in the past. He cited a case in which the value of heavy applications of stable manure could be seen in the herbage and crops after some years. In reply, Mr. Twartz said it was a capital idea to put hay ground under fodder crops, and it would compensate handsomely for the late fallow. He had a small paddock which had been treated with stable manure, and at first with 50lbs. of super, but now 1cwt. to the acre, which had been cropped continuously for 20 years. For the last nine years he had grown alternate fodder and hay crops, the last hay crop yielding two tons to the acre. He thought the use of ensilage for ewes and lambs might well be tested.

KILKERAN.

May 13th.—Present: 10 members.

Mr. A. Wakefield, in opening a discussion on the subject "The Best Implement for Sandy Soil," said the spring tyne cultivator was the best implement. It left the land in a rough "ridgy" condition, which prevented the soil from drifting, and for its size it was the lightest implement, which was a great consideration in sandy soil. Mr. S. T. Keightly endorsed the Chairman's remarks, and emphasised the necessity for working very wide shares, on the spring tyne, 7in. preferably, because with the wide shares large ridges would be made, and the soil would be less likely to drift. Mr. G. F. F. Sawade had proved that it paid to fallow light or sandy soils. Such soils should always be worked whilst in a wet condition.

WHEAT PICKLING.—In discussing this subject, Mr. R. Wakefield stated that pickling was a most important part of the operations of all cereal growers. He had used formalin, which had given better results than bluestone. He had used the "barrel" method when treating the grain. Mr. S. T. Keightley endorsed the previous speaker's views, as regards formalin. Shovelling the grain and solution on the floor was undoubtedly the best method of being sure that every grain came into contact with the pickle. Mr. E. H. Dutschke remarked that one point in favor of bluestone as a pickle was that wheat could be sown any length of time after pickling, and germination was not affected. He had used formalin, however, because it was much cleaner to handle. Mr. S. J. Jones favored formalin; he had sown it after pickling at different lengths of time from the following day after, to about a week after pickling, and found no difference in germination. Members generally favored formalin, the strength of the mixture being 1lb. of formalin to 40galls. of water for wheat, and a little stronger for barley.

ARTHURTON, April 24th.—The meeting discussed the subject "Wheat Crop Competitions," and Mr. M. T. Hynes was elected as the Branch representative under the scheme proposed by the Advisory Board. Messrs. Hynes and Henschke gave a fine report of the Yorke Peninsula Conference.

MOONTA, May 24th.—Mr. R. C. Kitto gave an interesting account of a trip he had recently made by motor car from Moonta to Sydney.

PASKEVILLE, June 17th.—Various matter of local interest were discussed. It was resolved, "That the members of the Paskeville Agricultural Bureau pledge themselves to discontinue the growing of red wheats."

WEAVERS, May 13th.—Mr. F. A. Anderson read a paper, "Increasing the Population throughout the Agricultural Areas of the Commonwealth," and an interesting discussion ensued.

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WESTERN DISTRICT.

BUTLER (Average annual rainfall, 16.61in.).

April 16th.—Present: 12 members and two visitors.

TANNING HIDES.—Messrs. W. and V. Pfitzner contributed the following paper:—“Tanning leather with the method described below is an easy process, and takes very little time. First, the hide should be put in a mixture of lime and water, so that the hair can be scraped off easily. The hide should be laid on a flat and clean surface and scraped on both sides to take off the hair, fat, meat, etc. It should then be left in clean water until the tan liquid is ready. The liquid consists of one 4gall. bucket of wild peach or quondong bark added to 20galls. of water. When cold, the hide can be immersed in the solution. Care should be taken that the tan is not too strong until the hide commences to show the color of the liquid. Then the liquid can be made as strong as possible by adding more scalded bark. The addition of three buckets of bark will in most cases prove sufficient. All that remains to do is to air the hide once a week. The process will take three to four months. Care should be taken when airing the hide that it is not allowed to become dry and stiff. When the hide becomes heavy it is a sure sign that it is nearly tanned. After the hide is tanned, it should be washed in two or three waters, but not allowed to become dry until the dressing is applied. When the tanner is applying the dressing—a mixture of mutton fat and beeswax—the hide should be hung over a rail, and the dressing well rubbed into the leather on the flesh side with a block of wood. The hide can then be left to dry until required for use. If the dressing is not applied, the leather will become hard and wrinkly, and will stretch, crack, and break when used. Any red bark will tan leather. Tanning a rabbit skin will take three weeks, a kangaroo skin six to eight weeks, and a hide three months.”

KOPPIO (Average annual rainfall, 22.40in.).

May 20th.—Present: 12 members.

TOP DRESSING PASTURES.—In the course of a discussion on this subject some members expressed the opinion that high grade super was not suitable for top dressing. Mr. W. R. Richardson thought that high grade fertiliser contained too much free acid. The Hon. Secretary (Mr. M. T. Gardner) mentioned that he had top dressed a 50-acre paddock last year with high grade super at the rate of about 50lbs. per acre, with wonderfully good results. *Poisoning Crows.*—Mr. V. W. Gardner asked if members knew of any effective means of poisoning crows. Several members recommended a blood mixture spread on a sheep skin, whilst others thought that powdered glass or S.A.P. mixed in small fat balls was very effective. One member said he had seen them caught with a baited fish hook attached to a copper wire.

LIPSON.

April 26th.—Present: 11 members and visitors.

CARE OF MACHINERY.—The following paper was read by Mr. D. C. Stewart:—“Too often a farmer buys a machine, uses it for a fraction of the season, then leaves it in the open or under a tree at the mercy of the sun and rain for the rest of the 12 months. Again, some farmers pull the machines under a straw or bush covering, where water drips on them all through the winter. A machine exposed to the weather for nine months in this district will deteriorate almost as much as if that machine were working all the time. When a farmer buys a machine, he should see that a weather-proof shed is provided. Farmers do not use enough paint on the machines. Machinery, if painted every two or three years will last a lifetime. Paint prevents rust, preserves timber, and gives the machine a new life. The farmer should use judgment when working a machine, especially if it is a new one. Some men are inclined to think that because the machine is new, it will work without any attention, but such is seldom the case. So far as the care of the machine is concerned, the first season is the most important. All nuts should be kept tightened, and all bearings watched to see that they are correctly adjusted. Use good oil, spend a little time each dinner time and morning with a spanner. If a bolt happens to break, do not use wire to effect a repair, but see that a few spare bolts are carried in the tool box in case of breakages. Be sure that the pieces of the machine that have come apart as the result of the breaking of the bolt are in position when the bolt is screwed up tightly.” A good discussion followed, in which all members took part.

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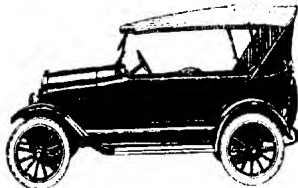
"The way in which the Car stood up to stresses and strains has been wonderful. The Car averaged 26 miles to the gallon of petrol and 360 miles to the pint of oil."

"I have averaged 2,400 miles to the gallon of oil and the petrol consumption showed an average of 27 miles per gallon."

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LIPSON.

May 17th.—Present: 15 members.

HANDLING AND BREAKING YOUNG HORSES.—Mr. W. O'Connor read the following paper:—"Bad habits of horses are very often caused by the faulty handling and breaking by an inexperienced horseman. Kind treatment and careful handling are the main points to be observed in breaking in young animals. See that all tackle is sound and strong before catching a young horse, and so give it no chance to break away. When caught, the colt should be held and thoroughly handled, and an endeavor made to accustom it to being touched on any part of the body before putting it into the team or vehicle. Handling a young horse in an open bridle is the most satisfactory method. Teach the horse to tie up, using a strong rope in the first place, until the colt is thoroughly broken in. Also teach it to lead and drive before it is worked in chains, and there will then be little or no subsequent troubles." A short discussion followed.

MILTALIE (Average annual rainfall, 14.55in.).

May 17th.—Present: seven members and visitors.

CARE AND TREATMENT OF HORSES.—In the course of a short paper dealing with this subject, Mr. J. C. Story referred to the important part the farm team played in the working of the property, and said the animals should be watered and fed regularly. Care should be taken to groom the shoulders to assist in minimising trouble with sore shoulders. Well-fitting collars and harness should also be used, and if possible, the collars should be re-lined every two years, because the sweat hardened the stuffing, which caused lumps and sores on the shoulders. Bran acted as a blood tonic, and the team should occasionally be given a liberal allowance with the ordinary chaff ration. Draught horses should not be asked to travel at a fast pace, about five miles per hour, when pulling a heavy load, should be the maximum pace. Concluding, Mr. Story said, "Treat the horses well and kindly and they will do good work." A short discussion followed.

MOUNT HOPE.

May 17th.—Present: nine members.)

ECONOMY ON THE FARM.—Mr. R. L. Myers read the following paper:—"One of the main factors of successful farming is economy, but at the same time beware of false economy. For instance, it is not profitable to use ½wt. of super instead of 1wt., neither is it economical to provide the stock with insufficient feed, and neglect the implements. Economy, combined with good judgment, will always play a very important part in successful farming. Some farmers do not take any care of the empty super bags, while the careful and good manager will shake them out well, or given them a good wash and hang them out to dry, when they can be used for many purposes. The good farmer will cover his haystack, have no losses through mice and wet weather, and will always give his animals good sound food and clean water. He will also clean out the troughs and tanks before they become too dirty, in order to always maintain a good state of health among the animals. It is also economical to erect fences and keep them in good order, because once the stock make a habit of crawling and breaking fences, they are hard to stop, and will give endless trouble in trying to keep them enclosed in the paddocks."

PETINA (Average annual rainfall, 13.19in.).

May 24th.

Eleven members were present at the May meeting. The question of destroying "buck bush" was brought forward for discussion. Mr. G. Roberts said that the best plan to adopt was to remove the beam from a set of harrows, and run the harrows—one horse to each leaf—over the ground. The bushes should be left for a week until thoroughly dry, when they could be burnt. Mr. W. Stone said for dealing with the bushes on fallow land, he had stripped an old drill, and with long chains had fastened a set of harrows without the beam—behind the drive. The bushes were gathered into large heaps, and could be burnt when properly dry. The chains should be about 9ft. in length in order to make large heaps of the bushes.

POOCHERA.

April 2nd.—Present: 18 members.

PICKLING WHEAT.—In the course of a paper dealing with this subject, Mr. F. B. Gosling said pickling wheat was absolutely necessary, and it was first advisable to run the seed through a grader to remove all weed seeds and cracked grain, and to ensure a clean sample. After referring to various methods used for pickling wheat, Mr. Gosling said he had used a mechanical wheat pickler for the last three seasons, and had had very good results. The solution he used consisted of 1lb. of bluestone and 1lb. of salt to 10galls. of water. In the discussion that followed Mr. C. Bohlin said he had used 1lb. of bluestone to 8galls. of water, and yet there was smut in the crop. Mr. V. Newbon asked which implement was the best for harvesting wheat for seed. Mr. Prowett considered wheat gathered with the stripper gave a better germination. Mr. McCormack asked if the combined drill and cultivator was a success in scrub land. Mr. Bohlin did not think stumps would break the tynes. Mr. Humphris had had good results from a spring tyne cultivator in rough country. Mr. Gosling asked which wheats yielded best in the district. Members favored Gluyas. Mr. Prowett asked if Ford was a suitable wheat for the district. Mr. Bohlin said Ford was subject to smut, otherwise it was successful. Mr. McCormack used nine balls of binder twine on $5\frac{1}{2}$ acres of Ford in cutting portion of the crop for hay. Mr. Prowett had good results from Currawa. Mr. Gosling, in reply to a question, considered Major too late for the district. Mr. A. B. Brockelberg asked if it was advisable to harrow dry ploughing before the drill. Mr. Bohlin favored harrowing before and after the drill. Mr. Prowett asked if it was advisable to harrow after the wheat had showed up. Mr. Bohlin believed it an advantage to harrow in August. Mr. Gosling had seen good results from harrowing after the crop was up on Yorke Peninsula, but had not tried it on the West Coast. Members expressed the opinion that harrows could be safely used in sandy soils, if worked whilst the ground was wet. Several other subjects were also discussed.

POOCHERA.

May 7th.—Present: 17 members.

TANK CONSTRUCTION.—Mr. C. O. Bohlin read the following paper:—"Tank construction and the conservation of water are of the highest importance to the majority of farmers on the West Coast. From recent investigations, I find that the quickest and most economical way of constructing underground tanks is to excavate with a plough and earth scoop. When excavating a tank, it is advantageous to work the sides down with a slope inwards, because when concreting the walls is commenced, there will be no need for concrete boards. It has been found very economical for farm tanks in this district to utilise the rubble in the bottom of the tank excavations for making the concrete, and 1 of cement to 12 or 14 of rubble has proved to be a very satisfactory concrete mixture. For the flush plaster, a mixture of 5 to 1 is recommended. Then take 2 of good, sharp, washed sand and 1 of cement to make a finishing cement plaster. The tank should be roofed as soon as completed, because the sun on the fresh cement often causes it to crack. The shade also eliminates evaporation of water. When selecting a site for a tank it is advisable, if possible, to select a position a little above water lodgments, in order to give the overflow water a chance of draining away from the tank." In the discussion that followed, Mr. J. B. Brockelberg thought the walls and sides of the tank should be treated with cement wash or tar. Mr. W. A. Gosling had obtained most success with a dry stone wall tank. He had used about four drums of cement on a 25,000gall. tank.

ROBERTS AND VERRAN.

May 15th.—Present: 12 members and visitors.

DISC v. SHARE PLOUGHS.—In the course of a discussion on this subject, Mr. G. Smith favored a share plough wherever it could be used, but where land was very bushy or carried much stubble, the share plough could not do a good job. Bushy land that was to be fallowed should have the shoots cut, and be fire-raked, and then ploughed with a share plough. Mr. H. Simmons favored a share

plough, because it left a firm seed bed, and pulled out stumps. All fallowing should be done with a heavy share plough, and subsequent working could be done with a skim plough or share cultivator. Mr. H. Lewis said the share plough was the better implement to work if the land was clear. A disc plough did not break all the ground, because the discs missed the soil when jumping over stumps and stones. Mr. A. Smith agreed that a share plough should be used wherever possible, but it was advisable to have a disc plough on hand to plough land that was too rough for a foot plough. The land was cleared more quickly, however, by using the latter. Mr. S. Simmons considered that in new country farmers should endeavor to have one of each type of plough. The foot plough should be used wherever possible, but there was usually some land too rough to do a good job with any implement but a disc. Mr. C. Masters said if foot ploughs were used more extensively better crops would be grown. The disc plough did not break the soil as well as a share plough. Especially did that apply to the twin-disc plough, the smaller discs of which, when the bearings became worn, did not cut as deeply as the front discs. On bushy land a disc had to be used, but wherever possible the share plough should be used. Mr. A. T. Cowley said the object of ploughing was to break and pulverise the soil. The share plough cut the soil to an even depth, whereas the disc left ridges underneath. He thought, however, that under favorable conditions the disc pulverised the soil better than a share plough. He considered it advisable to have both types of plough in that district. Mr. D. Jonas said a foot plough was needed to do first-class work, but for that district he favored a disc until the bushes were killed. He had done satisfactory work with a drill hauled by a tractor. Mr. W. H. Whittaker favored the share plough. He had used a twin-disc, and found that when the bearings became worn the small discs missed a lot of ground, but by using discs all the same size it eliminated that to a great extent. He favored shallow ploughing with a foot plough. Mr. B. Evans preferred the share plough wherever possible, especially for fallowing. For very bushy land, however, he favored a disc. Mr. M. Masters agreed that the share plough should be used wherever possible. It had the advantage of cutting through and tearing the roots over which the disc would ride.

TALIA.

May 10th.—Present: 12 members and visitors.

THE AGRICULTURAL BUREAU.—Mr. D. McBeath read the following paper:—"Sufficient interest is not taken in the meetings of the Agricultural Bureau in this district. One repeatedly hears farmers complaining about the Government Departments not helping primary producers, and yet, here is a Department set wholly aside for rural education, which is the most substantial help the man on the land can have. All advice in connection with crops, stock, gardening, dairying, &c., is given free by Government experts to members of the Bureau, and each member receives the *Agricultural Journal* monthly free of charge. Members should take an interest in Bureau meetings, and always come prepared to ask questions, and if possible, give practical advice to other members. Another very important matter is, that when a member is asked to write a paper, he should not neglect his duty, because the reading of the paper and the discussion that ensues are the principal educational factors of the Bureau. When no paper is read it is difficult to arouse a good discussion, consequently interest is lost, and probably the next meeting finds a smaller attendance. Considering that membership, advice, *Journal*, &c., are absolutely free, members should endeavor to take more interest in the Bureau, and if a farmer thinks that he has learned all that there is to be learned about agriculture, let him not be selfish, but come to the meetings and give other members the benefit of his knowledge. Remember the motto at the foot of the Bureau meeting cards—'Membership carries responsibility'—so be punctual and regular in attendance."

YADNARIE (Average annual rainfall, 14.09in.).

April 15th.—Present: 12 members and visitors.

SEEDING.—The following paper was read by Mr. G. Langston:—"Every careful farmer should commence seeding operations immediately after harvest by making all preparations, so that when the precise time comes, he may commence

without delay. Operations should be well carried out on thoroughly prepared land, or there will not be much chance of satisfactory yields at harvest time. The period before actual seeding can be taken up with putting implements in order, setting up the drill, and having all chains and swings in readiness. Seed can be pickled in advance, so that it may have time to dry out. A good method of pickling is to use a fair-sized barrel (let into the ground), and to have a draining contrivance rigged up on to which the butt of wheat can be dropped when pulled out. The bag of wheat should be separated into two butts, thereby given the seed plenty of room to swell, and to allow the pickling solution a good chance to soak through. One pound of bluestone to 10galls. of water is ample to counteract bunt and smut. Dry sowing can be done early on new land, and very good crops can sometimes be grown, but there is always a danger of their coming along too early. New land should be given a good ploughing for the first crop, and after that the cultivator will do. It should be the plan of every farmer to have as much fallow as possible, because better results are obtained from fallow land. Fallow should be worked after practically every rain, when the weeds make their appearance; although weeds can be killed more easily during dry weather, the land is not worked so well as when wet. Sheep are a great help to the farmer in keeping down weeds, especially when one is too busy to get on the land, but on light soils, if the flock is too large, they may start the fallow drifting. If the soil is of a heavier nature, sheep are exceptionally useful to keep fallow clean, break up clods of earth, and to pack the soil. If the fallow has been worked a time or two during the year, one working is sufficient at seeding time, but the weeds should be given a good chance to mature. If the land is well cleared the cultivator is the best implement, because more land can be got over, and it can be worked to a depth of 2in. and leave a good solid bottom for the seed bed. The cultivator should be followed immediately

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by the drill, and if the farmer has the opportunity, a light set of harrows can be used to cover the seed. A good rolling is also beneficial to the land. It is a matter of judgment as to what seed should be sown, but Gluyas has a fairly good name for early wheat in this district, whilst Florence, Federation, Currawa, Major, and Queen Fan have all proved their merits. Early and mid-season wheats show a good return if sown at the rate of 45lbs. of seed and 60lbs. of super. The combination drill and cultivator is a great help to the farmer if his land is free from rubbish and stumps. Seeding operations should start about the second week in April, and should not be carried on later than the end of June." Mr. J. J. Deer did not agree with the strength of solution prescribed for pickling—it was too weak. He always used one to five when dipping, and one to four when sprinkling. He would sow 70lbs. of seed to the acre instead of 45lbs. and would use a combine instead of a cultivator if the land were suitable. Mr. F. W. Jericho said he would work new land lightly, and thought wheat could be pickled before seeding commenced. Mr. J. A. Serotski used a one to eight solution, and always stirred the wheat whilst in the pickle. Mr. A. Spriggs thought 60lbs. of wheat should be sown to the acre of early varieties, and 45lbs. of stooling wheats such as Marquis. He considered 1½lbs. of bluestone to 10galls. of water quite weak enough for pickling, and he always left the butts of wheat in the pickle for two minutes. One could pickle ahead if care was exercised to see that the wheat was perfectly dry before stacking. Mr. H. Degner used a one to eight solution, and placed the wheat in a kerosene tin instead of a bag when immersing it in the pickle. He considered 45lbs. of seed and 60lbs. of super to the acre sufficient in the early part of the season, and later on he advocated sowing more seed and super to the acre.

YADNARIE (Average annual rainfall, 14.09in.).

May 20th.—Present: 16 members and visitors.

FARMERS' RESPONSIBILITIES.—Mr. W. E. Hier, in the course of a paper under this heading, pointed out that farmers should be more careful in keeping their wheats true to name by avoiding negligent practices at seeding and harvest time, also to use care when reaping wheat for seed so as not to crack or injure it in any other way. Mr. F. W. Jericho thought farmers should avoid growing and marketing weeds and the seed of same with the wheat. He did not believe in sowing wheat without pickling under any conditions. Mr. O. Forbes said he made it a practice to sow wheat for seed on new ground or clean fallow, and when drilling left a small space between the different sorts, and then cut two widths with the binder around the different varieties. He did not think there was much danger of smut in wheat sown before the opening rains. Mr. O. Kobelt thought a lot of weeds were spread through feeding of same to stock. Mr. W. L. Brown never pickled before the opening rains, but after that he pickled every variety of wheat. He always used bluestone. Mr. P. Dolling always obtained seed wheat and oats from reputable farmers, and even then it was difficult to get wheat true to type. He was a strong believer in grading.

BIG SWAMP, May 15th.—A number of subjects of local and timely interest were brought before the meeting for consideration, and an instructive discussion ensued.

COLLIE, May 31st.—Ten members and several visitors attended the May meeting, which took the form of a "Question Box." A number of local and timely topics were discussed.

GREEN PATCH, May 28th.—Members discussed the cultivation of fodders and grasses for the Port Lincoln district, and Mr. C. Dorward proposed that each member of the Branch should sow a plot of any variety of fodder crop. Mr. E. E. Chapman offered a prize of one guinea for the best fodder plot of from 1 to 20 acres, and Mr. C. Dorward consented to give 10s. 6d. for the second prize. Mr. T. Proude was prepared to donate 10s. 6d. for the best 10 acres or a larger area and Mr. H. Schwerdt offered a similar amount for second prize.

McLACHLAN, May 3rd.—An instructive paper, "A comparison of Australian and Canadian Conditions," was read by Rev. Owen, and an interesting discussion ensued.

SMOKY BAY, May 17th.—Discussion took place on the subjects, "Experimental Plots," "Water Reticulation," and "Farm Tractors."

WIRBULLA, April 19th.—Twenty members and a large number of visitors attended the meeting, which took the form of a social evening. The Manager of the Minippa Experimental Farm (Mr. Rowland Hill) attended, and presented certificates to the successful competitors in the local crop competitions. The meeting concluded with a dance and supper.

YALLUNDA FLAT, May 17th.—Mr. S. C. Fairbrother, who had sown a plot of 15 acres with Sudan grass at the rate of about 15lbs. of seed and 100lbs. of super to the acre, considered that the crop would carry five sheep to the acre. Other matters of timely interest were also discussed.

EASTERN DISTRICT.

BRINKLEY.

May 17th.

TOP DRESSING.—The following paper was submitted by Mr. L. W. Rust:—
 "Let us assume that a farmer has 1,500 acres of land cleared and fit for cultivation. In making plans for the season's crop, he has also to consider the amount of land he can fallow, and yet leave sufficient for feeding purposes for stock, which it can be assumed consists of, say, 15 horses, a few cows, and 150 sheep. Under ordinary conditions, he would require at least 500 acres, in this district, for feed. To make this portion of the farm more profitable, I suggest top dressing about 200 acres with not less than 60lbs. to the acre of 45 per cent superphosphate, which would mean an outlay of about £24, and it would be possible to carry 250 sheep instead of 150, in addition to other stock, because the feed would be more plentiful, and of better quality. In figures, this would mean—Purchase of 100 sheep at 30s. per head, £150; 5 tons 45 per cent. super, £24; total cost, £174. The balance-sheet at the end of the season would be roughly—Sale of lambs, 75 per cent. of sheep at the low figure of £1 per head, £75; 100 fleeces of 8lbs. at 1s. 6d. per lb., £60; income, £135. If we allow £25 for depreciation of sheep, making their saleable value £125, this would give a return of profit by stock on hand of £86, without taking into consideration the advantages the other stock would derive. As another example, how many times does the farmer bring his team into the stables when he is not working them to keep them in condition, because the feed is not good enough? During the course of the year, the cost of the chaff used for this purpose would balance the super bill. Where only a portion of a paddock has been top dressed, the difference in the feed on the dressed and undressed land can easily be seen from a distance. As to the time of application, I would apply the manure before the general break up of the weather, so that the feed would get a good start with the first rains. The experiences of reliable men are not wanting to show that, as a result of top dressing, the carrying capacity of a farm has been doubled, and even trebled. Another point of vital importance is that if the figures of the world's production of wheat for 1923 are studied, it will be seen that there is a large surplus held by the principal exporting countries, which will have an effect on prices, while on the other hand, the market for wool is high and likely to remain so for some time to come. I, therefore, conclude that the farmer must not depend on wheat or cereals alone to bring the highest interest on his capital, but with a system of top dressing, sheep are one of the main side lines to secure a better return per acre than at present. Many farmers have a small quantity of super left at the end of seeding, and they might, with advantage, experiment with top dressing a portion of a paddock."

COONALPYN.

May 16th.

An instructive evening was spent in talking over various topics of local interest.

LAMEROO (Average annual rainfall, 16.55in.).

May 24th.—Present: 16 members and visitors.

CORNSACKS.—Mr. Bertram, in a paper dealing with this subject, pointed out unfairness of the custom whereby the cereal grower was called upon to supply the container in which the produce was marketed at practically his own cost, whilst supplies of other forms of produce were permitted to make a charge for the package. The only return which the cereal grower received for the sack in which the grain was marketed, was the acceptance of the merchant of the weight of the corn sack as weight of wheat, which was about 2d., the sack in the first instance costing about 1s.

KRINGIN.

April 17th.—Present: 14 members.

HARVEST REPORT.—Mr. J. Guthleben reported as follows on the yields secured during the season 1923-1924:—"Early Gluyas on new land (the flats having been worked with a disc implement and drill, and sown with 62lbs. of seed and 70lbs. of 36 per cent. super) yielded 13bush. to the acre. Gluyas Late in the same paddock, but on land of a more sandy nature than the portion sown with Early Gluyas (sown in May with 60lbs. of seed and 70lbs. of 36 per cent. super, and then harrowed) yielded 13½bush. to the acre. Currawa was drilled on new land during May. The land was worked with a skim plough, and drilled with 42lbs. of seed and 70lbs. of 36 per cent. super, and then harrowed. It yielded 12½bush. per acre. German Wonder was sown on new land in May. The paddock was ploughed and then drilled with 50lbs. of seed and 63lbs. of 45 per cent. super, and finally harrowed. The yield was 12bush. to the acre. German Wonder was also sown on stubble land that had been worked dry with a spring-tyne cultivator in April, and drilled with 45lbs. of seed and 70lbs. of 45 per cent. super. The paddock was harrowed, and yielded 14bush. to the acre. Gluyas Late was sown on oaten stubble. The land was cultivated dry in April, and again during May. Sixty pounds of seed and 80lbs. of 36 per cent. super were sown to the acre. The land was harrowed, and returned 8bush. to the acre.

MONARTO SOUTH (Average annual rainfall, 14in. to 15in.).

May 17th.—Present: 15 members and visitors.

FALLOWING.—In the course of a paper dealing with this subject, Mr. M. Thomas said one of the most important points in fallowing was to see that the plough turned the ground thoroughly. From 3in. to 4in. he considered to be about the correct depth for that district. He believed in harrowing immediately after the plough. If fallowing were done from about the end of July to September, it would assist the soil in retaining moisture, and allow weeds to germinate. If possible, the farmer should cross cultivate and harrow, in order to bring the soil to a level surface. He favored working the cultivator just deep enough to cut all weeds. A spring-tyne cultivator should be used if possible. If the weeds were too big for the spring-tyne cultivator, a skim-plough or disc cultivating plough could be used. A discussion then took place on the subject, "Implements for Working Fallow." As the summer had been a wet one, most farmers had trouble in keeping the weeds down, some used skim ploughs, and found them very effective, but the fallow set much more after skimming than where a spring-tooth cultivator has been used. It was agreed that fallow should be left "ridgy," because then it could be worked up more easily than when perfectly level.

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MURRAY BRIDGE.

April 15th.

The Hon Sec. (Mr. A. R. Hilton) gave a report in which were detailed the results secured with various fodder plants and vegetables that were being tested in the local high school gardens.

NEW RESIDENCE (Average annual rainfall, 12.50in.)

May 14th.—Present: 16 members and two visitors.

PICKLING WHEAT.—Mr. A. Kassulke read the following paper:—"Before seed wheat is pickled, care should be taken to obtain wheat of the best quality. All seed wheat should be cleaned twice, or graded, in order to ensure a good sample. The pickling solution should be prepared by mixing $\frac{1}{2}$ lb. of bluestone in 1½galls. of water to every bag of wheat. The wheat should be turned over with the shovel three times, and then left on the floor until the next day before being bagged. It is also advisable to have wheat pickled at least two days before it is sown." In the discussion that followed, Mr. P. J. Voigt said he never used more than 1lb. of bluestone to 9bush. of wheat. Mr. J. F. Schober, who pickled with a machine, did not think two days were sufficient to dry the wheat. Mr. H. Klau favored covering the seed with a tarpaulin. Mr. W. Schier pickled two bags of wheat with $\frac{1}{2}$ lb. bluestone and 4galls. of water. Mr. Kassulke, in reply to a question, said he always dissolved the bluestone in hot water. Mr. Eckermann also favored pickling on the floor. Mr. O. Klau favored putting a piece of salt in the pickle, because he considered that strengthened the pickle without damaging the grain. Mr. H. Klau always pickled on the floor, and had never had smut. The writer of the paper stated that he had discarded machine-pickling in favor of treating the seed by shovelling on a concrete floor.

PARILLA WELL (Average annual rainfall, 16in. to 17in.)

April 21st.—Present: 14 members.

HARVEST REPORTS.—Mr. J. W. Johnston reported as follows on the returns secured by him from different fields of wheat during the year 1923-4:—Paddock No. 1, treated with 70lbs. super, yielded 23bush. 42lbs.; Paddock No. 2, dressed with 222lbs. super, returned 26bush. 40lbs; Paddock No. 3, which received 336lbs. super, harvested 26bush. 2lbs. Forty-five per cent. super was used in each test. Take-all was in evidence in the 70lbs. plot, but not in any of the others. Messrs. J. E. Johnston and J. S. Ferguson reported having sown oats on fallow with good results. Mr. Ferguson said oats (at the low price of 2s. 6d. per bush.), with their heavy yield, had paid equally as well as wheat. The feed value of the oaten stubble was far greater than that of wheaten stubble.

RAMCO.

May 19th.—Present: nine members.

SEEDING.—Mr. J. Boehm read the following paper:—"If fallow is to be sown it should be well cultivated or skin ploughed. Stumps should then be carted off the ground to prevent accidents to the drill. To drill wheat for a hay crop, about 50lbs. of seed with about 90lbs. of super, should be sown to the acre. If a mixed crop of wheat and oats is sown for hay, the best plan is to drill the wheat one way, and then cross drill the oats. The wheat used for a mixed crop should be an early variety, otherwise the oats will be too ripe by the time the wheat is ready for binding. Wheat sown for harvesting should be pickled before it is sown, and then drilled in at the rate of 40lbs. of seed with about 60lbs. of manure to the acre. Barley sown early is a good fodder, but for hay it must be cut before it is too ripe." A short discussion followed. *Life Membership*.—Mr. J. J. Odgers (Hon. Secretary of the Ramco Branch) was presented with a Certificate of Life Membership of the Agricultural Bureau.

WYNARKA.

April 16th.—Present: 12 members and visitors.

THE AGRICULTURAL BUREAU.—Mr. Murphy read the following paper:—"During the whole term of my membership, I have never attended a meeting without getting some help from the Bureau. I have come in contact with people both

in and out of this district who were sceptical regarding the work of the Bureau. In this district, I have been asked, "What good does it do you?" yet the same people have asked me to secure the opinion of the Bureau on a certain subject, or they have suggested that the Secretary of the Bureau should write to the Department of Agriculture and obtain the information from the expert officers. The *Journal of Agriculture* is most useful to the farmer. Among the things that I look forward to at each meeting are the communications received from the Department of Agriculture. I feel that if one acts upon the advice received from the various experts one cannot go very far wrong. To have a real live Branch, each member must be prepared to do his share of the work. It does not matter how short the talk or paper is that is brought forward, because some of the best discussions come from the briefest talks and papers. Above all, the Branch must have a live Secretary; he is the man on whom the success of the Branch hinges. The Secretary should keep in touch with the Department of Agriculture, and write to the various experts for their opinions regarding various matters that crop up at each meeting. Such a Secretary is a great asset to the Branch."

GLOSSOP, May 23rd.—The Hon. Secretary (Mr. G. C. Jackson) read a paper from the *Journal of Agriculture*, "Irrigation," and a lengthy discussion followed. The delegates to the Murray Bridge Conference gave an interesting report of the proceedings of the gathering.

KRINGIN, February 21st.—The inaugural meeting of the Kringin Branch of the Agricultural Bureau was held at the residence of Mr. H. Guthlehen, when Mr. F. C. Richards, of the Department of Agriculture, was present, and delivered an address in which he explained the work of the Agricultural Bureau. A short paper, "Preparing the Seed Bed," was read by Mr. Correll.

LONE GUM and MONASH, April 16th.—Twenty-two members and several visitors attended the April meeting. Mr. W. F. Partridge delivered a short address, "A Talk on Sultanias," and replied to a number of questions. The subject "Winter Irrigation" was also discussed.

MOOROOK, May 23rd.—A paper from the Conference of River Murray Branches, "Factors Affecting the Yield of the Vineyard," was read, and an interesting discussion ensued.

MYPOLONGA, May 26th.—At the monthly meeting of the Branch, arrangements for the forthcoming Pruning Competitions were discussed.

NETHERTON, May 16th.—The subject "Top Dressing Pasture Land" was brought forward for discussion. Several members mentioned that it was their intention to carry out top dressing experiments during the coming season.

PARILLA WELL, May 20th.—Mr. J. S. Ferguson read a paper, "Rotation Cropping," and a good discussion followed.

PARILLA, May 23.—Mr. H. G. Johnston read an instructive paper, "Management of the Farm," and a keen discussion ensued.

TAPLAN, May 13th.—Several subjects of local and timely interest were brought before the meeting, and an interesting discussion followed.

SOUTH AND HILLS DISTRICT.

CURRENCY CREEK.

May 16th.—Present: 13 members.

QUESTION BOX.—The meeting took the form of a Question Box. "Which is the best cross for lambs for export?" Members were divided as to which was the better ewe, the Merino or the Comeback, but all favored the Shropshire ram. "Best method of pickling wheat?" Most members favored treating the wheat in bags in a tub. "Is it a good practice to have a stack of hay in reserve each year?" It was agreed that fodder should be conserved, but pre-

cautions should be taken to protect the stacks from mice. "Best method of hand-feeding sheep?" If nothing else was available, members thought troughs made from bags would be quite suitable. "The best pig for farmers to keep?" The Berkshire was favored as the best breed of pigs for the farmer. "Which is the best cow for the farmer in this district?" Members favored the Short horn.

KANGARILLA.

April 17th.—Present: 15 members.

MANURING THE LAND.—The following paper was read by Mr. M. A. Bottrill:—The increased demand for hay and chaff calls for the best that can be produced from the soil. Some soil will give good returns without manure, whilst applications of manure will not make any appreciable difference to other soils. Green manuring is a considerable help in soil that is too stiff and heavy, but where stable manure is plentiful, the soil will benefit to a greater extent. The difference between farmyard manure and chemical manure is that the maximum effect of farmyard manure is not felt in one season, and if it were omitted the second year, very little difference would be seen. With chemical manure the greatest effect is noticed in one season, and if omitted for one year, the crop would be diminished, perhaps by one-half. Cowyard manure, if kept dry, can be put through a sieve, and will run through the drill in the usual way. If dry cow manure is carted from the paddocks and put in the cowyard where the continual tramping of the cows will break it fine enough, it can be used in the drill. The manure of young animals is poorer in fertilising matter than that of a full-grown animal, because the young animal requires nitrogen, potash, and phosphates to build up its bones and flesh. Working animals give better manure than fattening animals. Milking and pregnant animals give poorer manure. The kind of food has a very great influence on the quality of the manure. Foods that contain the most nitrogen are of the most value—beans, peas, bran, oats, wheat, and barley produce good manure, but the straw of peas, oats, barley, and wheat produce a bulky but poorer manure. Urine of animals is generally of more value than solid manure, and the more urine there is contained in the dung, the better it is. Liquid manure is very similar to artificial and chemical manures, because it is in solution and acts quickly. Poultry manure is very strong and quick in action. In its dry condition it is more like guano than any other fertiliser. For top dressing, it is very valuable, and it is only necessary to use it in small quantities." An interesting discussion followed.

LONGWOOD (Average annual rainfall, 37in. to 38in.).

May 17th.—Present: 6 members and visitors.

THE FRUIT INDUSTRY.—The monthly meeting was held at the residence of Mr. W. Nicholls, when Mr. H. A. Griffiths, in the course of an address dealing with the above subject, said for quality, texture, and color, South Australian apples were without parallel, and with a view of stimulating trade with New South Wales, he suggested that growers should establish a co-operative packing shed, with a capable man in charge, and a staff of careful packers. The apples should be put up in cases which were attractive, and with cleated ends to allow for a free circulation of air whilst in the cool chambers. A light, strong make of case, without hard wood, so far as possible, was preferred for the interstate trade. He suggested a brightly-colored label depicting a grower's garden with the words, "South Australian Grown Fruit," with spaces provided for the insertion of the kind of apple, grade, and quality contained in the case. He also suggested a central despatch depot to dispense with indiscriminate consignments of fruit from individual growers. That would enable the producers to regulate the number of consignments going forward, and so prevent a glut on the Sydney markets. The South Australian apple had come to stay on the Sydney market, and very profitable business would result if care were exercised in getting up an attractive article, and keeping faith with the purchasers. An interesting discussion ensued, and it was resolved that a scheme should be evolved to hold the trade with New South Wales.

MCLAREN FLAT.

May 15th.—Present: 37 members and 3 visitors.

MARKETS FOR FRUIT.—Mr. G. Ward read the following paper:—*Apricots.*—For the apricot there is a fair fresh fruit market. In years of glut the price drops to about 3s. 6d. per case for good fruit, and in poor seasons the price will reach about 10s. per case. The grower should remember that when the price reaches 10s. per case, the crop will only be about one-quarter that which it would be in a good season, and during the good seasons there is a difficulty in disposing of the fresh fruit, so that drying becomes necessary. The price for the dried article does not vary like that for fresh fruit, for, while the latter is 3s. 6d. per case, the grower will get about 10d. per lb. dried. A case of fresh fruit will produce about 8lbs. of dried, returning 6s. 8d. per case. Up to a certain limit, fresh and dried fruits can be handled at about the same cost. Dried fruit commands a good sale at about 1s. per lb., and the export market to England is fair. *Prunes.*—If prunes are planted, the grower has about eight years to wait before any return is received. At present, there is a good local market at about 6d. per lb. off the drying trays, which is a good price, but it is necessary to look further afield than the Commonwealth, for in about six years I think the Australian requirements will be supplied. Once the Australian market is supplied, the grower is up against the American goods, which are quite as good as ours, and packed very much better. The American grower pays higher wages than we do, water rates are higher, and land is quite as dear, yet how does he successfully compete with us? First, the producer grows prunes only, and he is quite sure they will grow before he plants them, and his returns are about 2 tons of dried fruit per acre, and all he does is grow and dry them, for they are treated in

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bulk. The chief consideration is the quantity that can be consumed in America, the surplus export may just cover growing expenses. We are not in the same position with such a small population. If planting goes on at the rate it is, in 12 years we will be exporting, say, 50 per cent, and will have to compete with the American article. The Australian fruit exported would only return the grower, *c.i.f.*, London in boxes, £45 per ton. *Currants*.—The writer planted currants in 1900, and that year and a number of years following the price was 4½. per lb. through the winnower, in sugar mats. Wages were not so high as at present, 5s. per day being the ruling rate. In those days the consumption of currants in Australia was about 5,000 tons, and is still about the same to-day. We were then importing about 3,000 tons, and to-day we are exporting about 8,000 tons, which in the near future will be more. What is to be done with the surplus currants? We have a sale in New Zealand for about 1,000 tons if we can place it there at the same price as the Grecian fruits. South Africa also wants currants if we can supply at the same price as they can buy elsewhere, but their market does not stand for much, as they can grow grapes and currants as well as we can with the advantage of black labor, and before long they will be competing against us instead of buying. The only market at present of any importance is in London. During the war and just after the declaration of peace this market was very good. The Grecian fruit was not available, and very good prices were obtained, but now conditions are returning to normal, and reduced prices are ruling. At the present time England consumes about 20,000 tons of currants per year, and last year we supplied about 15 per cent. of that amount. I should say that for good 3-Crown currants, we will find a market for the surplus for some time to come at about £50. *c.i.f.*, London. The outlook for 2-Crowns does not appear so satisfactory, because it will have to compete with the Greek bulk article. This proves that the grower must produce currants at 3½d. per lb. off trays. A poor yield in the Greek vineyards will make it better for Australia in the London market. Currants can be grown at 3½d. providing the grower can get an average of 1½ tons per acre per year. *Sultana and Muscat Raisins*.—These can be grown in the district, but not to advantage, and I do not think it wise to deal with them. In the first place, they ripen too late, and secondly, the land in this district is not suitable to produce a good class of raisin. Wine grapes can be well grown in this district, but as prices have been on the downward grade for the last three years, one hesitates to advocate any additional plantings. If there were 25 per cent. less Doradillos than there are to-day, things would be much better. A certain quantity of Doradillos is wanted each year, but after that is supplied, there is very little demand for them. They are not much good for wine making. Some winemakers use them for making hock, but they are chiefly used for making fortifying spirit and brandy. Say, for instance, 1,000 tons of Doradillos are required for making brandy, and 2,000 tons for spirit, the remainder of the crop is of very little value, because the winemakers produce a lot of poor wine which has to be used for making spirit, and in a year such as has just been experienced, only 25 per cent. of the black grapes will make wine fit for the distillery. With this season's grapes, decayed and rotten, the vigneron who manufactures dry wine, will have a lot of juice fit only for the distillery. This is against increased production of Doradillos. The makers of sweet wine are the only manufacturers looking for spirit. Here again, the season has interfered. The grapes have not ripened, so that it has not been possible to make a good sweet wine. The best of the grapes will be used, the remainder put through the distillery, to the disadvantage of Doradillos. In 1920, spirit was costing wine makers 13s. per gallon, and could not be procured. To-day, however, all the wine makers have enough spirit to carry them through the vintage. The distilleries are full, and spirit can be bought for 4s. per gall. The Doradillos have, as it were, spoiled the spirit sale. What about the London market? England consumes about 12,000,000galls. of wine per year, and of this we supply some 700,000galls. of dry wine, and consequently it does not help the Doradillos. Australia is making something like 10,000,000galls. of juice per year, and exporting a little more than half a million, the remainder is either consumed or stocks are accumulating. If the Government assisted with an export duty on sweet wine it would help, but we will have too many Doradillos for the next 10 years, if not another vine is planted. In concluding, I would say that at the present price of spirit, Doradillos may soon be grown profitably for manufacturing motor fuel."

McLAREN FLAT.

June 12th.—Present: 26 members.

ADVICE TO ORCHARDISTS.—The following paper was read by Mr. G. Ward:—“Apricots do best in a good loamy or sandy soil, with a red clay subsoil, about 2ft. or 3ft. from the surface. If closer than this, some of the trees, in a wet season, will in all probability die. Currants and grape vines can be grown successfully on a greater range of land, but they will do better and last longer in land that has about 1ft. of sandy soil overlying clay. Prunes do well in this class of land, and will grow well in fairly wet soil. If the land is wet, and of a dark sandy nature, with tea-tree growing on it, it will produce good potatoes in the autumn, but not in the spring. If the land is only of fair quality, and the clay near the surface, a few underground drains will carry off the water, and it will grow vines, pears, and prunes. If apricots and currants are to be planted, start clearing the highest and driest portion of the block. If potatoes, vines, or prunes are planted, clear the lowest and wettest portion of the block. Most beginners are inclined to select a spot on the block and plant about 10 different kinds of trees, saying that it is not wise ‘to have all your eggs in one basket,’ but, with such a mixed orchard, endless work will be incurred, and not enough of one variety of fruit will be produced to be of very much value. I advise planting three acres of Moorpark apricots with a few trees of some other varieties that bloom at the same time, for pollination. Apricots will give a small return the fourth year, and if the fruit is dried, the trays can be used for other fruits later on in the season. Five acres of currants would be a fair start. Most blocks of 25 acres have a long side and a short end. Start with the apricots, taking the full width of the orchard, and then currants can be planted across the block. That is to say, start on the highest and driest ground on the south end, and work across it towards the lower corner, in the northern end. The land will be running north and south, and the rows of trees and currants will be worked east and west. By adopting this method of planting, the dry land can be worked early in the spring, and the wetter land can be cultivated as the dry season advances. Too often wet and dry land is noticed in one block, and the land that is ready for working cannot be cultivated on account of wet patches. In preparing the land for the orchard, the first work is to grub the timber and undergrowth. Yacca and tea-tree should be taken out by the roots. Small bushes can be dealt with by a heavy disc plough. All green timber that has large roots within half a chain of the fence should be grubbed, otherwise vines or trees within that distance of the fence will not thrive. Plough the land 6in. deep with a disc plough. Care should be taken that all roots that have been missed by the grubbers are removed. Care should also be taken to obtain the best young trees and vines one year old, and well rooted at the bottom. The grower should bear in mind that roots as thick as a small piece of string will have a better chance of starting than those with roots as large as a lead pencil. Trees or vines should be planted in straight rows, with an even distance apart between the rows. If a planting wire is used, this is quite an easy matter. Plenty of room should be allowed on the headlands—30ft. for trees and currants. However, when the trellis is erected this will be reduced to 24ft. When planting, prune off all damaged roots, and shape them evenly. It is not necessary to cut tree roots back to any extent, because this is often done to excess when trees are taken out of the nursery. Vines, if taken up carefully, have all their roots on them. All side roots should be cut off, and all those that start from the bottom two buds should be cut back to 3in. The best time to plant trees is about a fortnight before they break into leaf growth. Vines in limestone country should be planted early in July, but for this district I favor September and October. Apricots do the best when planted 20ft. apart each way. Dig the hole about 2ft. across and 1ft., or a little more, deep. Give each tree about ½lb. of bone super; place about 3in. of earth on the manure, put the tree on this, and distribute the roots as evenly as possible. Take care not to plant the tree more deeply than it was in the nursery. Prunes are planted in the same way. I suggest planting 90 per cent. D’Agen and about 10 per cent. Robe De’Sargent, or Spendour for pollination. Zante currants should be planted 12ft. apart each way. Dig the holes 1ft. square, give each hole not more than 2oz. of bone super, place about 2in. of soil on this, plant the vine, fill in the earth, and when tramping keep a slight upward strain on the vine to cause the short

roots to be the lowest at the extreme end. Wine grapes are planted in the same manner, but not quite so far apart—spur vines, 10ft. x 6ft.; trellis vines, 10ft. x 7ft. After planting, work the land thoroughly with a spring-tooth cultivator. If the soil should start to drift, leave the ground as rough as possible. The application of a few loads of old straw, manure, or clay will soon stop the drift."

MOUNT PLEASANT (Average annual rainfall, 26.87in.).

May 9th.—Present: five members.

FALLOWING.—A paper on "Fallowing" was read by Mr. C. O. Royal. In the discussion which followed, Mr. M. McCallum said that fallowing was a good proposition, and it should be more extensively practised in their district. It enabled a farmer to get the seeding done earlier, and heavier crops resulted. Mr. V. R. Tapscott asked whether it was necessary to wait a fortnight or so after the first rains before commencing seeding on fallow land, in order to allow weeds to germinate. Mr. Royal replied that he considered it best to get the seed into the ground as soon as possible to enable it to get a good start before the cold weather commenced.

SHOAL BAY.

May 21st.—Present: 10 members and visitors.

A large number of members, including representatives from the Cygnet River Branch attended, when matters in connection with the proposed Conference of Kangaroo Island Branches were discussed.

PREPARATIONS FOR SEEDING.—A further meeting was held on June 11th, when Mr. A. Barrett, in the course of a paper dealing with this subject, said all implements should be overhauled so that the work could be done thoroughly and without delay. Next, the land should be cleared of all rubbish, which should be stacked in heaps and burnt. Ploughing should be commenced with the first rains, and the land left for three to five weeks to allow all weed seeds to germinate. The land should then be ploughed a second time, sufficiently deep to bury all weeds. Finally, it should be cultivated to form an even seed bed, and kill any remaining weeds. He favored drilling at the rate of 1 cwt. of super to the acre, and one bag of barley to three acres. Next, the land should be harrowed, and, if possible, cross harrowing should be carried out. When the crop was well stood, it should be rolled to settle the ground, which tended to conserve the moisture, and prepare a smooth surface for the harvesting machinery. On limestone loam soils, and those of a heavy clay nature, he advised ploughing to a depth of 4in., but sand soils should not be ploughed a greater depth than 2in. In the discussion that followed, Mr. Balchin did not consider deep ploughing necessary. Mr. Turner considered the cultivator the most suitable implement for sandy land. Mr. K. Bates considered a second ploughing unnecessary. Mr. Noske did not think it advisable to allow the land to remain idle after the second ploughing, seeding should be carried out at once. Mr. Beck was of the opinion that heavy land needed deep ploughing.

TWEEDVALE.

May 15th.—Present: 18 members and visitors.

LAND DRAINAGE.—The following paper was contributed by Mr. W. H. Fechner:—In districts where there is excessive rainfall, it is necessary to drain surplus water off the land, otherwise it becomes sour, and small roots of young plants become inactive, and very often decay. To drain a hillside is quite a simple matter, the surplus water naturally flows to the bottom, but to drain flats or low-lying country it is necessary to bring the water into a body. This can be done by ploughing the paddock into "lands." The width of the "lands" should be regulated according to the slope. Where almost level country is drained, the "lands" should not be more than 18ft. wide, but as the slope increases, the width of the "lands" can be increased until a width of 30ft. is reached. Even on a hillside, it is not advisable to go to any greater width.

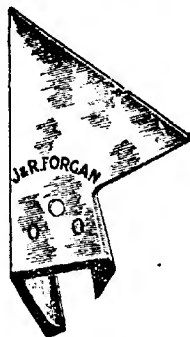
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because if the "lands" are too wide, the amount of water that collects in each furrow becomes too great, and often washes soil away. The crown or centre of the "land" should be kept as high as possible when ploughing. A paddock should always be cross-harrowed, which will have a tendency to give the "lands" a gradual slope from the crown or centre to the furrow, and thereby allow the water to accumulate more easily into a body and flow away. In the discussion that followed, Mr. F. E. Hein spoke at length on underground drainage which he considered essential on low-lying ground and flats in that district. He preferred 3in. earthenware pipes, placed about 15in. to 18in. under the surface. V-shaped drains were excavated in order to allow a small drain under the pipes. Mr. E. S. Miller, who had been experimenting with underground drains, considered bricks the best material for underground drains. He advised standing two on the side and one flat across the top.

URAILDA AND SUMMERTOWN (Average annual rainfall, 44.25in.).

May 5th.—Present: 10 members.

ONION CULTURE.—Mr. F. Sharp read the following paper:—"For the gardener who intends raising onions as the main line of vegetable growing, the best plan is to raise seed on the holding, when he will be able to decide on a variety to suit local conditions, either a good early sort or a good long keeper. When selecting onions for seed, it is advisable to pick out a few good bulbs each time the onions are being prepared for market. During September, the selected onions should again be examined, and the best onions planted. The onion chosen for seed should be one that is of a good shape, fairly round, with a raised crown, because these are not so liable to rot through water getting into the crown, neither will they get burned by the sun so quickly. Always pick out firm bulbs, because the harder and firmer the onion, the better keeper it will be. It is not necessary to pick out onions for seed every year, they can be allowed to remain in the ground year after year. When the seed is cut, the stalk must be bent downward to prevent the water getting down inside the bulb of the onion. Onions should be planted for seed no later than September. Plant in rows about 18in. wide and 12in. between the onions. It is advisable to plant the crop for seed where it can be watered. A good watering when the plants are coming into flower will help to increase the amount of seed. The seed should be cut when the small pods begin to crack and the black seeds begins to show, or when the stock of the seed onion begins to turn yellow. The seed that has been cut off should never be left in a tin, because it will sweat and spoil; always put it in a bag or spread it out upon a sheet of iron in the sun. Rubbing it two or three times a day will help to dry it more quickly. Always take it in over night so that it will not become wet. Never cut seed whilst it is wet. The best way to clean onion seed, after it has been removed from the pods, is to put it into a dish of water, the good seed will sink to the bottom, whilst the weak and inferior seed will float on the top. This can be skimmed off and thrown away. Then take the good seed out, spread it on a piece of tin to dry, taking care that the drying is done thoroughly and as quickly as possible. Always keep a small quantity for the next year in case the seed proves to be a failure. Growing onions from seedlings is not very successful in the hills. The best time to start planting out is at the beginning of August, if not much water is available, because planting early will give a better crop than planting in October. Where there is plenty of water late planting is better, because the ground is more easily kept free from weeds. The best way to plant onions, if plenty of water is at hand, is to sow the seed at the beginning of September with the seed sower. Sow thinly, so that the plants will not require much thinning out, then with plenty of water and manure a good crop should be assured. The land should be ploughed six weeks to two months before the plants are ready. Plough in a good dressing of stable manure at that time, so that it will be well rotted by planting time. Leave the land in a rough condition to allow the air to penetrate into the soil. A fortnight before planting, give the ground another good dressing of bone dust, plough this in, and leave the land until planting is commenced. When the plants are ready, harrow, roll, and scarify the ground.

Then if it is not fine enough, rake it, and then finally drill out and plant. More manure, if necessary, can be distributed by hand, and then raked in. When the onions start to grow, hoe bone super into the ground, and give the plants a watering. Onions should be planted 6in. between the rows and 3in. between the plants. If the plants cannot be irrigated, plant 10in. between rows and 4in. between the plants. Care should be taken to keep the weeds well under control. The best plan is to give the plants a good soaking rather than many small waterings. If the soil is inclined to be stiff and solid, best crops will be obtained by shallow planting just deep enough to cover the roots. In loose soils, deeper plantings can be made, because the bulb will force its way up to the surface. *Storing and keeping onions.*—To keep onions successfully, the first point of importance is to select a good keeping variety. The best place for storing onions is in a loft running from north to south, leaving both ends open, and with a floor with boards about 1in. apart, so that plenty of air can circulate through the bulbs. Onions can be placed in heaps provided the loft is about 6ft. wide at the bottom of the heap and then tapering to a point up to 3ft. deep. For storing, the onions should be cut with a stalk of about 4in. attached; this helps to keep them apart, and provides for a free circulation of air. Onions must be taken out of the ground when they are ready, i.e., when nearly all the green color has disappeared from the tops. This very soon takes place after the onion tops have fallen. The crop should always be carted in the same day that it is taken out of the ground. Onions should always be handled carefully. They should never be taken up when there is a heavy dew, or when it is raining. Cover them with rubbish whilst they are lying upon the ground. Applying too much water after the crop starts to go down is a mistake, because it will tend to start growth more quickly than those who do not receive water. As soon as the onions start to go down, they should be given a good watering for the last time, and then allowed to 'bulb.' "

BLACKHEATH, May 16th.—The meeting took the form of a "Question Box" evening, when a number of subjects of local and timely interest were brought before members, and an instructive discussion ensued.

CLARENDON, April 14th.—Various subjects of local interest were discussed, after which Mr. W. Nicolle initiated a debate on the subject, "Merino v. Crossbred Sheep for the Hills." Mr. H. C. Harper spoke in favor of the Crossbred. After hearing the two speakers, members were of the opinion that the Merino was the type of sheep best suited to the conditions of the Hills District.

IRON BANK, May 24th.—The meeting debated the subject, "Spraying." It was generally agreed that to ensure clean fruit two sprayings of bluestone should be given in the spring. Other subjects of local interest were also considered.

HARTLEY, April 16th.—The monthly meeting of the branch was held at the residence of Mr. J. M. Hudd on April 16th. There was a large attendance of members and visitors. After the formal business of the meeting had been transacted, Mr. D. F. Westwood (Chairman) presented a morris chair to the Honorary Secretary (Mr. W. B. Hudd) on the eve of his marriage as a mark of appreciation of the services that he had rendered to the local Bureau. Games and supper terminated a very enjoyable evening.

TWEEDVALE, June 19th.—The Director of Agriculture (Professor Arthur J. Perkins) attended the meeting. Thirty-four members and 14 visitors were present to hear the Director's Address, "Top Dressing Pasture Lands."

SOUTH-EAST DISTRICT.

FRANCES (Average annual rainfall, 20.74in.).

April 26th.—Present: 10 members.

STABLE AND SHEDS FOR BEGINNERS.—Mr. L. Krahner read the following paper:—"For a combined stable and chaff shed, procure good solid forked posts 11ft. long to the inside of the fork, and for the centre of the shed not less than 15ft.,

in order to give a 'pitch' of 4ft. to the roof. All forks should be not less than 3ft. in the ground. A convenient-sized chaff shed, say, for six to eight horses, is 18ft. x 20ft. The same width of building is quite enough for the stable. Have a manger 2ft. wide, and allow 3ft. for a gangway so that the horses can be fed from the front. If the chaff shed door is in the correct position, it only takes a few minutes to feed the team. Divide the stable into stalls 6ft. wide, and fasten all the horses. If a couple of loose boxes, say, 9ft. x 11ft., are built at the end, they will be found a great convenience when foals are being reared, because there is always somewhere to keep them safe whilst the mares are working. For covering for the stable, I advise battens 2ft. apart covered with 1in. or 1½in. mesh netting to keep sparrows out of the straw roofing. In order to get the posts the same height, measure the first post from the inside of the fork, say 7ft., then place it 3ft. in ground. By measuring all the posts, and using a straight edge and spirit level from one post to the other, a neat job can be made with bush timber. The depth of the holes can be measured by using a light stick or pole. For the machinery shed the same size building will suffice, with this difference, that each division must be made wide enough to accommodate each machine, such as the binder, harvester, drill, &c. Be sure and keep all harness and machinery under cover." Mr. Krahnert gave a demonstration with loaf sugar and fine sugar on the benefit of keeping the top of the fallow worked.

KONGORONG.

May 19th.—Present: 14 members and visitors.

POULTRY ON THE FARM.—In the course of a short paper dealing with this subject, Mr. A. Boardman spoke in favor of White Leghorns for the farm. With proper care and attention birds of that breed would commence to lay at four months old, and if hatched during September or the first fortnight in October, would continue to lay until well on into the winter. He expressed a preference for oats to form the bulk of the feeding ration. Crushed bones made an excellent addition to the food for the hens. Green bones should be broken with a hammer. Fowl manure was a very good fertiliser, especially for clovers and grasses. Referring to ducks, Mr. Boardman favored the Indian Runner, because they were a good egg-laying breed.

MOUNT GAMBIER (Average annual rainfall, 32in.).

May 10th.

PLANTING PINE TREES.—Mr. A. J. Hemmings read the following paper:—
 "However important it may be to know how to care for growing trees, and how to remove them when they have reached maturity, it is equally important to know how to plant them so as to ensure their successful growth. It will be readily admitted that it is desirable that seedlings for transplanting should be reared in close proximity to the land on which they are to be planted, because the seedlings so grown can be removed from the nursery as they are required for planting out, and the risk of loss or injury in conveying them to the planting ground close by is less than otherwise would be the case. The seed to be sown in the nursery plays a part that is of prime importance. It is, therefore, necessary that only good seed should be sown. If seeds are to be extracted from cones, care must be taken in their selection. Those growing on good, matured trees are to be preferred. These should be gathered in the early summer months, the earlier the better, but not before they have a brown appearance and all traces of green have gone. The selected cones contain the seeds, and these can be extracted by exposing the cones to the heat of the sun, which has the effect of opening the cones, and releasing the seed. It will be found a good plan to spread the cones out on a tarpaulin or sheet, but protection against possible raids by mice, fowls, and birds is imperative. On no account should the cones be placed in a hot oven because the effect upon the seed is bad. Pine seed should be sown from late July to early September. Germination will take place in from three weeks to seven weeks, according to weather conditions. Seedlings required for small plantations, such as are established by farmers and landowners.

can be raised in small plots in the household garden. When, however, larger quantities are required for commercial planting, seed should be sown in an ample plot that will permit of making rows 18 in. apart and lines of considerable length. Approximately from 100 to 120 seeds should be sown to the lineal yard, and with good germination 80 to 100 seedlings per lineal yard should result. These can remain in the nursery until the following June, when they will be ready for planting out. Care of the seedlings need only be slight, but it is desirable that the lines should be kept free from weeds, and the top soil stirred after rain in the summer months, so that the moisture is retained in the soil. More frequent stirring of the top soil will be necessary if the normal summer rains do not come. No attempt whatever should be made to plant trees on land from which rabbits have not been cleared. When grass is plentiful the rabbits destroy the young pines by nipping off the tops, and in the summer months, in their search for moisture, they bark the pines from top to bottom. The intending planter should be careful, therefore, to rid the land of this pest before operations are commenced. The most suitable land for pine planting is that which possesses good top and subsoils. The South-East abounds with sandy soils, most of which are favorable to splendid growth of the Remarkable Pine (*Pinus insignis*). Land with a stony subsoil is not so good, and its use for this purpose should be avoided if it is possible to do so. The chosen land should be securely fenced, cleared of rubbish and vermin, and ploughed. Ploughing will check the growth of natural herbage, and help to retain moisture until the trees get a good start. It will be an advantage to lay the land off in blocks of not more than 10 acres, leaving $\frac{1}{2}$ a chain break on either side, and from 1 to 3 chains on the outer side, according to the nature of the adjacent lands. Breaks in grass land should be 1 chain wide, and kept ploughed, but in timbered country ploughed 3 chain breaks are requisite. If trees to be planted are procured from the Woods and Forests Department, it is desirable to make an early application, enclosing a postage stamp for reply, without which requests for trees are not entertained. Trees from the local distribution nursery should be heeled in thinly for a few weeks before being planted out. This helps the trees to recover from the first shock of transplanting, but in transplanting trees grown in your own nursery "heeling in" can be dispensed with. Wrenching of young pines is only necessary in the case of two-year-old trees, and it should be done five or six weeks before planting is intended. Finally, before planting pine trees, the roots should be puddled. This process consists in dipping the roots of the trees in a "puddle." The puddle should be composed of the best soil obtainable—a red loam preferred—mixed in a box or tub with water until of the consistency of thick gruel. So soon as the trees are lifted from the soil their roots are immersed in the "puddle," which must be kept well stirred, and when the roots are thoroughly coated with "puddle" the trees are withdrawn and placed under cover ready for transport to the planting ground, either by hand or vehicle. Every care should be taken to protect the trees in all the various operations of lifting, "puddling," and transport, because tender trees cannot withstand either wind or sun. A fruitful source of much disappointment is non-observance of these essential rules when planting pines. Fruit trees may be carelessly handled at certain seasons of the year without any apparent ill effect, but carelessly handled pines will invariably suffer from ill treatment. It will be found an advantage to use boxes for transport of trees, and to have the lids on them, to effectively cover in the trees whilst being moved for transplanting. Before placing the trees in the ground, dig the ground well, sift out fern, and other roots or weeds, and form a bed shaped like a shallow basin or dish, dig out a wedged-shaped spit in the centre of same, and insert one pine, not more, quickly, in order to save exposure. Quickly straighten out the roots, fill in the soil, and firmly tread it in with the feet. The roots should be straightened, because crooked ones retard the tree in its development. Firmed soil acts as a support and prevents air reaching the roots. The depth to which the tree should be inserted in the spit will be 1 in. to 3 in., according to the size of the tree, deeper than when it grew in the nursery. This is to allow for the settling of the soil which follows when rain falls. *Planting trees.*—Trees should be planted in straight rows—at least one way—for several reasons, especially for cleaning between them when desired and convenience in removing certain trees if required before the mowing of the whole area. Indeed very little care or trouble is needed to keep trees in line every way, if planters are provided with correctly measured

poles, and careful measuring on their part is observed. In planting *Pinus insignis* for plantations, it is recommended that plants be spaced 8ft. by 8ft. For shelter and shade they may be planted from 20ft. to 30ft. apart to allow for spreading. It is a good idea to space alternately, where more than one row is being planted for shade. Very little now remains to be done, but await developments. It will be necessary, of course, to keep an eye on the area, that no rabbits gain access through burrows or holes in the netting, and for the first year to replant misses, should there be many. A strict observance of the foregoing should, however, obviate the necessity for replanting. Fire breaks must be ploughed annually. This is important, and money well spent, for if fire takes even one block, at say, 10 or 12 years old the monetary loss will exceed by a great many times the cost of keeping firebreaks effective by ploughing. Having given some general ideas of planting pines, for the benefit of those who wish to plant other kinds of trees I shall briefly explain methods of rearing and planting that have proved successful. Acacia seeds (wattles, blackwood, &c.) should be placed in a small calico bag, and placed in a pot with water already boiling. Allow the bag with the seed to remain in the boiling water for two minutes, and then remove the bag. Place it on a sack and pour the boiling water over and then wrap the sack around the bag containing the seed. This can be placed on one side for, say, 24 hours, when it will be found that most of the seed has commenced germination, and can be then sown. This sowing can be done either in the early spring or in early January. Sowing in January, however, will necessitate watering the seed and young plants frequently. A cover of wood-heap manure, from which all chips have been removed, will serve as a means of retaining moisture. The trees, whether from seed sown in early spring or early January should be ready for planting the following June. Eucalyptus seeds of all kinds can be sown on being taken ripe from the tree, and can be treated in the same way as acacia seed, except that they must not be boiled. Whether the seed is sown in early spring or January the seedlings will be ready for planting the following June. All kinds of evergreen trees, when raised in beds, should be taken up and "puddled," and in every respect should be treated in the same way as pines, when preparing them for planting, and especially must they be covered when in transit from nursery to the planting area. Where only a few trees are required, these may be raised in bamboo tubes, and the trees planted in their place with the tubes. This obviates the necessity for "puddling," and avoids a great amount of risk from exposure. Plants may also be raised in boxes and transplanted with a small sod by removing with a large spoon or small scoop into holes already prepared. Trees raised by the last-named two methods are usually smaller, and are not so well fitted to stand the battle of life against weeds, &c., as trees grown in beds, but are equally as successful, if additional care is given them during the first year by keeping weeds down, and occasionally hoeing that they may become well established the first year, after that they will care for themselves."

ALLANDALE EAST, May 23rd.—An interesting evening was spent in discussing the subject "Top Dressing Pasture Lands," and several members stated that it was their intention to experiment with super on grass lands during the coming season. Samples of "Snowflake" potatoes were exhibited by Messrs. Griffin & Kieselbach.

KALANGADOO, May 12th.—Mr. Messenger read a paper, "Calving Troubles," and a good discussion followed. Mr. Rogers stated that he had found a drench consisting of fresh milk and ground charcoal an excellent remedy for cows that had not "cleaned" properly.

KALANGADOO WOMEN'S, May 12th.—Various topics of local interest were discussed at the monthly meeting. It was decided that the branch should compete in the Bureau District Exhibit Competition to be held at Mount Gambier during October.

NARACORTE, April 12th.—Mr. S. H. Schnickel read an instructive paper, "Vegetables and How to Grow Them." A keen discussion followed.

TANTANOOLA, June 7th.—Mr. E. J. Pryor read a paper, "Boys and Girls' Clubs." The aims of the clubs were explained by the writer of the paper, and reference was made to the success that had attended the introduction of boys' and girls' clubs in Canada and the United States of America.

